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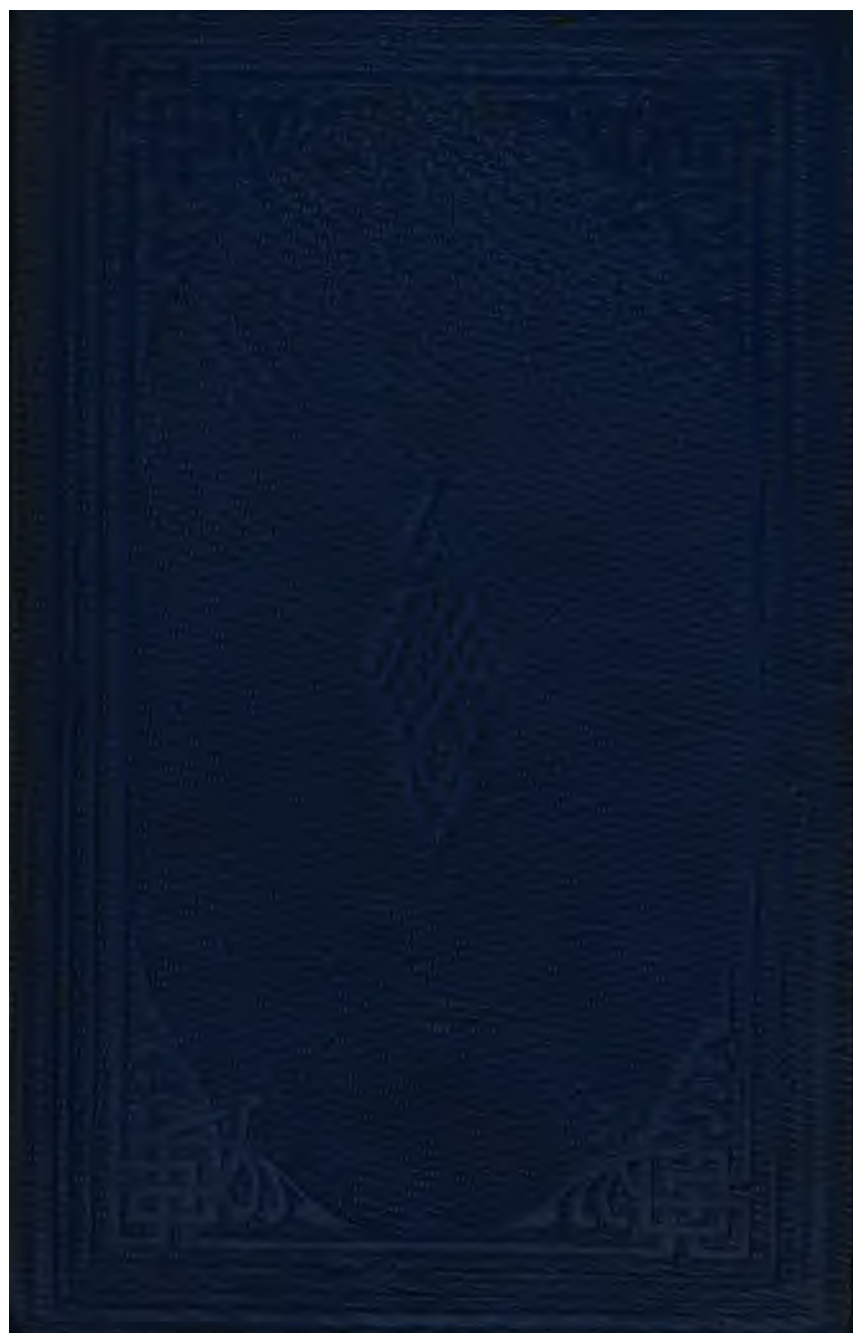
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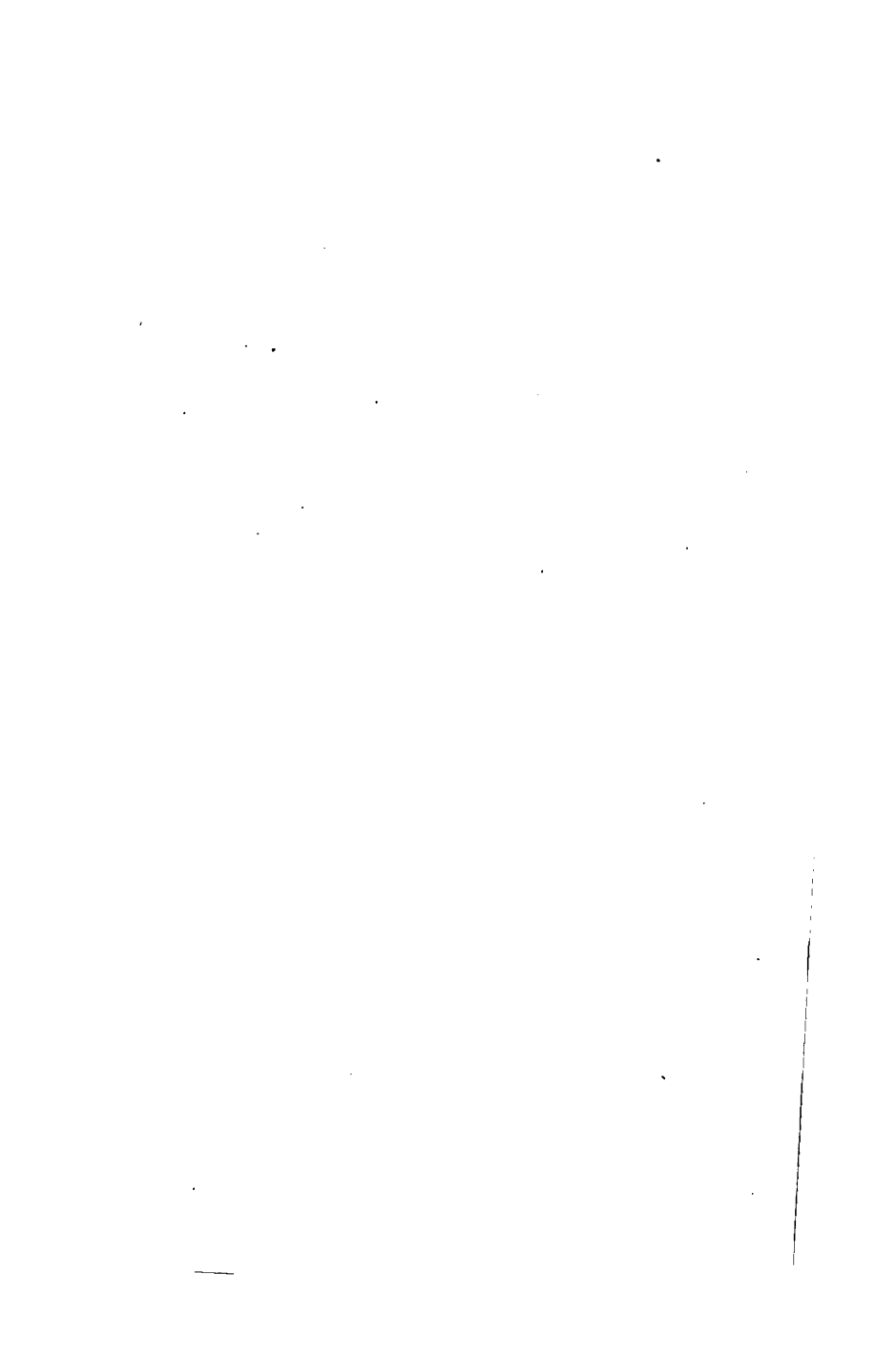
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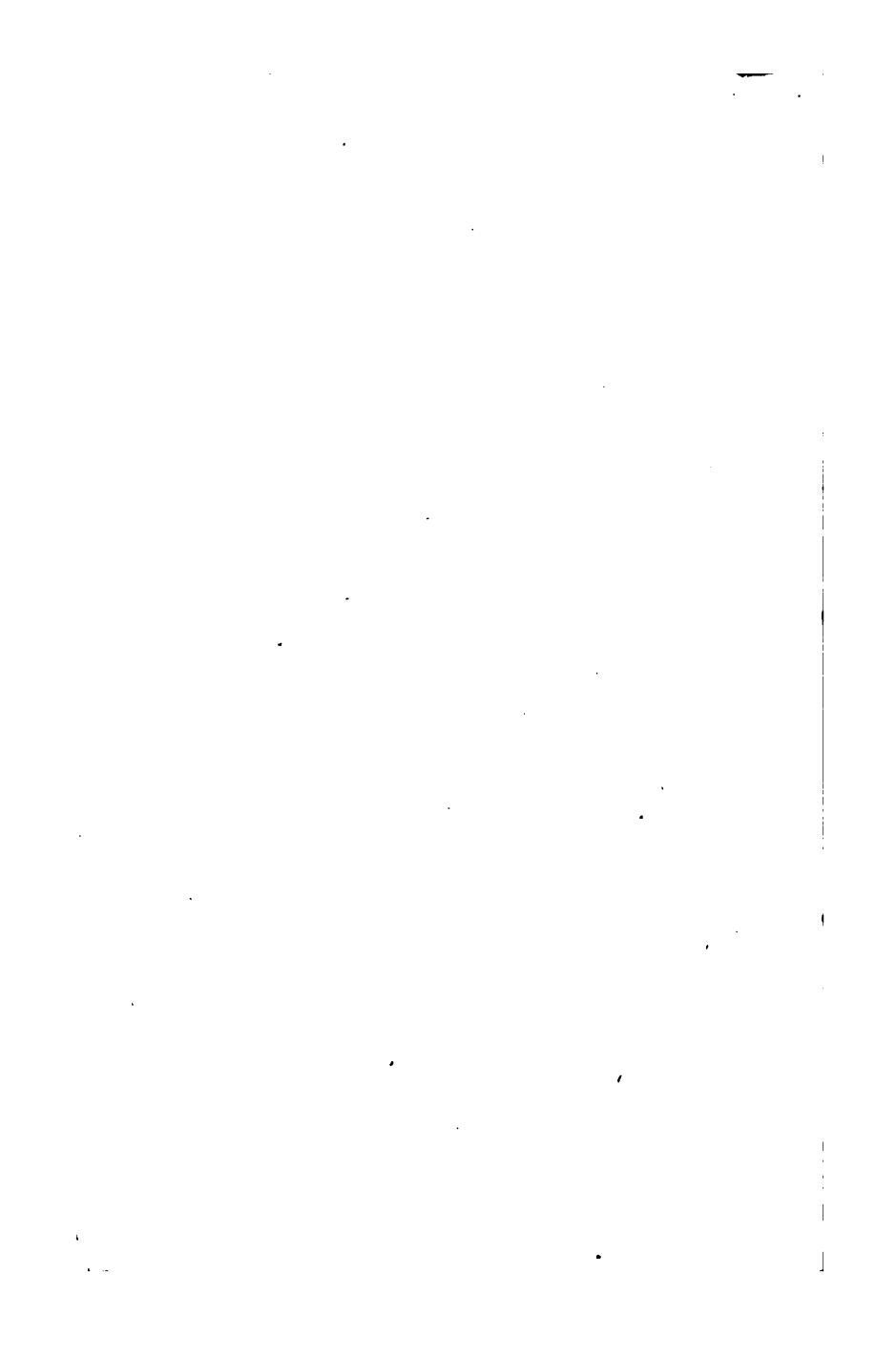
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HEALTH FOR THE MILLION.



HEALTH FOR THE MILLION;

INCLUDING

HINTS ON THE PHYSICAL TRAINING OF YOUTH,
AND THE TREATMENT OF INVALIDS AND OLD AGE :

WITH OBSERVATIONS ON

UNHEALTHY EMPLOYMENTS.

BY THE AUTHOR OF

"HOW TO MAKE HOME HAPPY," "THE ACCIDENTS OF LIFE," ETC., ETC.

"Allow not nature more than nature needs."

SHAKSPEARE.

LONDON :

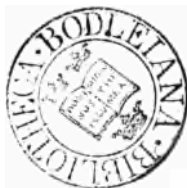
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TO
ALFRED JONES, Esq., M.R.C.S. ENGD., L.S.A.

This Book

IS AFFECTIONATELY INSCRIBED

BY
THE AUTHOR.

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INVOCATION TO HEALTH.

" Daughter of Pæon, queen of ev'ry joy,
Hygeia, whose indulgent smile sustains
The various race luxuriant Nature pours,
And on th' immortal essences bestows
Immortal youth; auspicious, O descend!
Thou cheerful guardian of the rolling year,
Whether thou wanton'st on the western gale,
Or shak'st the rigid pinions of the north,
Diffusest life and vigour through the tracts
Of air, through earth, and ocean's deep domain.
When through the blue serenity of heaven
Thy power approaches, all the wasteful host
Of Pain and Sickness, squalid and deform'd,
Confounded sink into the loathsome gloom,
Where, in deep Erebus involved, the fiends
Grow more profane. Whatever shapes of death,
Shook from the hideous chambers of the globe,
Swarm through the shudd'ring air; whatever plagues
Or meagre famine breeds, or with slow wings
Rise from the putrid wat'ry element,
The damp waste forest, motionless and rank,
That smothers earth and all the breathless winds,
Or the vile carnage of th' inhuman field;
Whatever baneful breathes the rotten south;
Whatever ills th' extremes or sudden change
Of cold and hot, or moist and dry produce;
They fly thy pure effulgence—they and all
The secret poisons of avenging heaven,
And all the pale tribes halting in the train
Of Vice and heedless Pleasure; or, if aught
The comet's glare amid the burning sky,
Mournful eclipse, or planets ill-combined,
Portend disastrous to the vital world,
Thy salutary power averts their rage,
Averts the general bane; and but for thee
Nature would sicken, nature soon would die."

ARMSTRONG.

INTRODUCTION.

" Without health's cheerful, active energy
No rapture swells the breast, no poet sings,
No more the maids of Helicon delight.

"Tis this adorns the rich.
The want of health is poverty's worst woe."

ARMSTRONG.

A *due* regard to health is one of the most essential ingredients to happiness. "Sana mens in corpore sano" is the prayer of all; but how few endeavour, by their principles and conduct, to secure these blessings! To such individuals hygeian rules are troublesome; any restraint upon old and irregular habits is irksome; the practice of even the most simple observances of health is considered superfluous; and when nature at length remonstrates in a debilitated constitution, it is found, when frequently too late, that a due attention to mere ordinary precautions would have averted the consequences resulting from sloth and folly.

The attainment of health and happiness depends chiefly on the attention and forbearance we give to certain hygeian principles, which experience and reason declare to be essential. It has been justly remarked that habits, such as will stand firm under difficulties and temptations, can be created only by taking up the means of securing health as a study.

Beddoes well observes, "To bear in the mouth that health is the first of blessings not only answers no good purpose, but tends to create that sort of hypocrisy and self-deceit which substitutes the repetition of a maxim for its observance." Habits, such as will stand firm under difficulties and temptations, can be created only by taking up the means of securing this blessing as a *study*; that is, by fixing the attention severally upon the modes in which it is forfeited, on the advantages that accompany its possession, and the consequences of its loss. If ever the Roman address of congratulation, "Happy is he who learns caution from the danger of others," be appropriate, it may with the

greatest right be claimed by those who learn caution with regard to their own health, from observing what brings infirmity upon others.

Galen, who lived to the age of one hundred and forty years, is an example of close attention to a system which, owing to an infirm constitution in youth, he adopted and practised with success.

"I beseech all persons," he says in his advice to the readers of his *Treatise upon Health*, "who shall read this work not to degrade themselves to a level with the brutes or the rabble by gratifying their sloth, or by eating and drinking promiscuously whatever pleases their palates, or by indulging their habits of every kind. But, whether they understand physic or not, let them consult their reason, and observe what agrees and what does not agree with them, that like wise men they may adhere to the use of such things as conduce to their health, and forbear everything which, by their own experience, they find to do them hurt; and let them be assured that, by a diligent observation and practice of this rule, they may enjoy a good share of health, and seldom stand in need of physic or physicians."

In modern times we have a striking instance of the effects produced by salutary habits in the person of that remarkable man, John Wesley, who, although of a weakly constitution in his earlier years, prolonged his existence to nearly ninety by rigid temperance and exercise.

Another remarkable example of self-imposed hygienic regulations conducing, under adverse circumstances, to secure health, is recorded in the excellent *Jonas Hanway*. When this worthy went first to Russia, at the age of thirty, we are informed by his biographer that "his face was full and comely, and his person altogether such as obtained for him the appellation of the 'handsome Englishman.' But the shock which his health received during his residence abroad made him much thinner, and though he subsequently recovered his health, so as to live in England twenty successive years without any material illness, he never recovered his plumpness."

The precarious state of his health on his return to England—for he was then labouring under all the premonitory symptoms of consumption—rendered it necessary for him to use the utmost caution in his diet and regimen. He never drank spirituous liquors in any form, nor wine undiluted with water. He knew that exercise was necessary to him, and he loved it. "He was not one of those who had rather take a dose than a walk; and though he had commonly his carriage with him when he went abroad, he yet walked nearly twice as much as he rode, and at such a pace that he used to say he was always more incommoded in the streets by those he passed than by the persons who overtook him."

By rigid attention and care Hanway re-established his health; his lungs acquired strength and elasticity, and but for a disorder, accidentally contracted, there is reason to believe that he might have survived beyond the ordinary term of mortality.

We might multiply instances of similar obedience to the dictates of nature, but they cannot be needed to induce persons to have a due regard to their own bodies, or to the first principles of self-preservation implanted in us by the benevolent Creator.

Precepts for the maintenance of health abound both in ancient and in modern times. The codes of laws of various nations have incorporated sanitary regulations. The minute instructions respecting diet, ablutions, &c., among the Hindoos, the Egyptians, the Hebrews, and the Greeks, directed ostensibly to the performance of certain religious duties, were dictated by a prudential regard for health.

According to Xenophon, the discipline of the Persian youth in the time of Cyrus was severe, consisting of coarse bread and herbs for their diet, although they were undergoing the fatigues of military exercise; while their beds were the earth, with the canopy of heaven for their curtains.

The rules of Plutarch on the subject of health are excellent, and by a faithful observance of them he lived to an advanced age with unimpaired faculties. By a similar regard to self-imposed regulations old Parr attained the age of one hundred and fifty-two years. His advice is worth remembering: "Keep your head cool by temperance, your feet warm by exercise, rise early, and go soon to bed; and, if you are inclined to get fat, keep your eyes open and your mouth shut."

Cardinal de Salis, who died in 1785, after reaching his hundred and tenth year, when asked what system he observed to keep his health, would reply, "By being old when I was young I find myself young now I am old."

It is the imperative duty of every member of God's community upon earth to fulfil the design of the Creator in making the wonderful machinery of our mortal frame, and, by the exercise of virtuous principles, to sustain it in the strength and beauty for which it was intended, rendering it a fitting temple for gratitude and praise to the benevolent Giver of life.

One of the most striking passages we have met with on the real enjoyments of health will be found in the "Utopia" of Sir Thomas More. After describing in this work the towns, trades, manner of life, and travelling of the Utopians, the author goes on to speak of their education, philosophical views, and pleasures. Of these last "some belong to the body, and others to the mind. The pleasures of the mind lie in knowledge, and in that delight which the contemplation of truth carries with it, to which they add the joyful reflections on a well-spent life, and the assured hopes of a future happiness."

Music, which is classed among the bodily pleasures, by an "unseen virtue affects the senses, raises the passions, and strikes the mind with generous impressions.

"Another kind of bodily pleasure is that which results from an undisturbed and vigorous constitution of body, when life and active spirits seem to actuate every part. This lively health, when entirely free from all mixture of pain, of itself gives an inward pleasure, independently of all external objects of delight; and though this pleasure does not so powerfully affect us, nor act so strongly on the senses as some of the others, yet it may be esteemed the greatest of all pleasures, and almost all the Utopians reckon it the foundation and basis of all the other joys of life, since this alone makes the state of life easy and desirable; and when this is wanting a man is really capable of no other pleasure. They look upon freedom from pain, if it does not rise from perfect health, to be a state of stupidity rather than of pleasure. This subject has been very narrowly canvassed among them, and it has been debated whether a firm and entire health could be called pleasure or not. Some have thought that there was no pleasure but what was excited by some sensible motion of the body; but this opinion has been long ago excluded from among them, so that now they almost universally agree that health is the greatest of all bodily pleasures, and that as there is a pain in sickness, which is as opposite in its nature to pleasure as sickness itself to health, so they hold that health is accompanied with pleasure.

"It is said that health cannot be felt. They absolutely deny it; for what man is in health that does not perceive it when he is awake? Is there any man that is so dull and stupid as not to acknowledge that he feels a delight in health? And what is delight but another name for pleasure?

"But of all pleasures they esteem those to be most valuable that lie in the mind, the chief of which arise out of true virtue and the witness of a good conscience. They account health the chief pleasure that belongs to the body, for they think that the pleasure of eating and drinking, and all the other delights of sense, are only so far desirable as they give or maintain health; but they are not pleasant in themselves otherwise than as they resist those impressions that our natural infirmities are making upon us. For as a wise man desires rather to avoid diseases than to take physic, and to be freed from pain rather than to find ease by remedies; so it is more desirable not to need this sort of pleasure than be obliged to indulge it. If any man imagines that there is a real happiness in these enjoyments, he must then confess that he would be the happiest of all men if he were to lead his life in perpetual hunger, thirst, and itching, and, by consequence, in perpetual eating, drinking, and scratching himself, which any one may easily see would be not

only a bare, but a miserable state of life. These are, indeed, the lowest of pleasures, and the least pure; for we can never relish them but when they are mixed with the contrary pains. The pain of hunger must give us the pleasure of eating, and here the pain outbalances the pleasure; and as the pain is more vehement, so it lasts much longer; for as it begins before the pleasure, so it does not cease but with the pleasure that extinguishes it, and both expire together. They think, therefore, that none of those pleasures are to be valued any further than as they are necessary; yet they rejoice in them, and with due gratitude acknowledge the tenderness of the great Author of nature, who has planted in us appetites, by which those things that are necessary for our preservation are likewise made pleasant to us. For how miserable a thing would life be if those daily diseases of hunger and thirst were to be carried off by such bitter drugs as we must use for those diseases that return seldomer upon us! And thus these pleasant as well as proper gifts of nature maintain the strength and sprightliness of our bodies."

Such are the sentiments of one of the greatest philosophers the world has produced, and the reader cannot but feel edified by the liberal and truthful construction put upon health. Dr. Johnson wisely observes that, among the innumerable follies by which we lay up in our youth repentance and remorse for the succeeding part of our lives, there is scarcely any against which warnings are of less efficacy than the neglect of health. When the springs of motion are yet elastic—when the heart bounds with vigour, and the eye sparkles with spirit, it is with difficulty that we are taught to conceive the imbecility that every hour is bringing upon us, or to imagine that the nerves which are now braced with so much activity will lose all their power under the gripe of time, relax with numbness, and totter with debility.

"Health is, indeed, so necessary to all the duties as well as pleasures of life, that the crime of squandering it is equal to the folly, and he that, for a short gratification, brings weakness and diseases upon himself, and for the pleasures of a few years, passed in the tumults of diversion and the clamours of merriment, condemns the maturer and more experienced part of his life to the chamber and the couch, may be justly reproached, not only as a spendthrift of his own happiness, but as the robber of the public—as a wretch that has voluntarily disqualified himself for the business of his station, and refused that part which Providence assigns him in the general task of human nature."

Dr. Cheyne remarks on the same subject, "He that wantonly transgresseth the self-evident rules of health is guilty of a degree of self-murder." The same writer observes, also, that such conduct forms a moral crime, "for the infinitely wise

Author of nature has so contrived things that the most remarkable rules for preserving life and health are moral duties commanded us; so true is it that godliness has the promises of this life as well as that to come."

Miss Martineau truly observes that "the health of a community is an almost unfailing index of its morals." No one can wonder at this who considers how physical suffering irritates the temper, depresses energy, deadens hope, induces recklessness, and, in short, poisons life. The domestic affections, too, are apt to languish through disappointment in countries where the average of death is very high. There is least marriage in unhealthy countries, and most in healthy ones, other circumstances being equal.

Good and bad health are, therefore, most assuredly, both cause and effect of good and bad morals.

At the same time an over-attention to health, an undue anxiety about our physical condition, is as unwise as the want of due precaution. Addison illustrates the former extreme in his account of a young gentleman of a considerable estate, who had been educated by a tender mother with such a concern for his health that she made him good for nothing. Reading, she quickly found, was bad for his eyes, and writing made his head ache. He had got by these means a great stock of health, and nothing else; and, if it were a man's business *only to live*, there could not be a more accomplished young man in the whole country.

It is frequently the case that persons naturally of a sound constitution, on the occurrence of occasional indisposition, become their own doctors, and, by a pernicious treatment of themselves, lay the foundation of chronic ill-health. We learn from Paulus Jovius that Alexander (Jerome), a celebrated cardinal, who died in 1542, ruined his health by the over-care he took of it, being a very bad physician to himself, and making use of too many unnecessary medicines. "He enjoyed," says Jovius, "the purple five years, and might have arrived at a good old age if he had not, through too great solicitude to preserve his health, proved a mad and unsuccessful physician to himself, and corrupted his entrails by improper medicines."

The *drugging system* has found numerous victims at all times in our country. Thousands have perished from a want of knowledge and caution in this respect. It is easy to show how dangerous the injudicious use of drugs must be. Moisture is indispensable to the beauty of the skin and of the eyes; if the skin becomes dry it also soon becomes harsh, rough, and probably scaly. If the eyes are not properly supplied with tears, to wash the eyeballs at every motion of the eyelids, they will to a certainty become painful and red, independently of their loss of lustre. Now, all the natural and delicate moisture which

keeps the skin soft, pliant, and transparent, and the eyes moist and brilliant, is supplied by a sort of filtration from the extremities of those hair-like blood-vessels which carry the transparent part of the blood. If, therefore, these vessels are shut up by the use of drugs, so that they can no longer carry the transparent fluid to moisten the skin and the eyes, the source of all comeliness is destroyed.

"Many things," observes an old writer, "are written in our books which seem to the reader to be excellent remedies; but they that make use of them are often deceived, and take for physic, poison."

Few things are so productive of injury to health, or so readily convert a trifling ailment into an alarming and fatal disease, as the misapplication of medical maxims, and the constant misuse of medicinal substances. Either long study and much experience have no superior claims over ignorance and conjecture, or mankind are singularly heedless of their health and bodily comfort when they play with the most potent and dangerous drugs of the apothecary's shop, to say nothing of the poisons concealed in the innumerable patent mixtures, pills, syrups, and elixirs, which they credulously swallow on the faith of empirics, whose impudence is by far the most prominent trait in their character. The most complex and wonderful of all pieces of mechanism, the living human body, is abandoned as a fair subject on which every knave is allowed to try his hand for the benefit of his purse, or well-meaning busybody for the display of his or her vanity.

The rule is exceedingly simple for the guidance of those who, either in their own persons or for their friends, would wish to ward off an attack of impending disease. It is to abstain from everything which might possibly be injurious as food, strong drinks, inordinate exercise, exposure to extremes of temperature, the shock of the passions, &c. A proper knowledge of the most important functions of the body is highly necessary. Our preceding remarks do not apply to this, but to the love for empiricism and the fondness for quack medicines evinced by many persons, and which produce the disastrous consequences we have mentioned. An acquaintance with physiology would be found of great importance in combating popular prejudices, and explaining many matters which are now left entirely to the medical man. Such studies would teach us to ward off many diseases which, through ignorance, grow upon us, and cause infinite discomfort afterwards.

"Most men," says Dr. Cheyne, "know when they are ill, but very few when they are well; and yet it is most certain that it is easier to preserve health than to recover it, and to prevent diseases than to cure them. Towards the first the means are mostly in our own power; little else is required than to bear

and forbear; but towards the latter the means are perplexed and uncertain."

It is reported of the Emperor Tiberius that he said it was shameful for any man past threescore to reach his hand to a physician to feel his pulse. This was a strong expression, but still it is proper that a man at sixty should have some knowledge of his own pulse, and should be acquainted with his own temper of body in regard to heat and cold; but, above all, should have ascertained by experience what agrees with him and what does not—a knowledge easily acquired by a little attention and study.

We quite agree in the following remarks by a writer in one of the medical journals:—"To merchants, and, indeed, to persons engaged in almost any kind of business, a certain amount of physiological information is a matter of prime necessity. The consequences of the want of this knowledge are painfully felt every day by thousands, and there is not, perhaps, a medical man in the kingdom, who is not constantly called to patients who have injured their constitutions and ruined their happiness by over-application to business. Young men start in life with the best intentions in the world. They are industrious, prudent, frugal in their undertakings. They gradually work themselves into a good connection, and then, step by step enlarging their enterprises, and cultivating their business with unremitting, sleepless assiduity, they lay the foundation of a large fortune; but in too many instances it happens that just at this point their health gives way—just when the prize is in view it eludes their grasp. The digestion becomes disordered, the bowels inactive; the head, once so clear and intelligent, becomes the seat of a thousand nameless sensations, indicating a congested condition. It is dull, confused, heavy, preternaturally hot, and incapable of sustained thought. The memory is impaired; sleep flies their pillows; the spirits become depressed, and gaunt images of failure in business, ruined health, and misery of every kind rise up before the distracted vision. Now all this wretchedness might have been foreseen and avoided, for it is the plain result of an infringement of the eternal laws of nature. An amount of exertion has been exacted of the brain which it was never organised to undergo. A slight acquaintance with physiology will teach one so to husband his powers that they be not prematurely exhausted, nor the system ruined by being forced into a temporary intensity of activity which the human mechanism is not adapted to sustain. Of course it is not only merchants and tradesmen who incur the risks and penalties attendant upon incessant mental labour, but clergymen, lawyers, students at school and college, artisans, and persons of every class are all more or less affected; for ignorance of physiology is universal, and the temptation to inordinate application in

these days of competition and rivalry is so great, that only those whose eyes are fully opened to its fatal tendency can refrain from joining in the headlong race after riches, and rest satisfied with the more slow but far surer and safer method of moderate, but steady and continuous gains."

Hufeland, in his celebrated work on the means of preserving health, presents the following picture of a person who might, as far as human calculation extends, be destined for longevity.

"He has a well-proportioned stature, without, however, being too tall, but rather of the middle size, and tolerably thick set. His complexion is not too florid: too much ruddiness, at least in youth, is seldom a sign of longevity. His hair approaches more to the fair than to the black. His skin is strong, but not coarse. His head is not too large. He has prominent veins in the limbs, and his shoulders are rather round than flat. His neck is neither very long nor short. His stomach does not project, and his hands are large, but not too deeply cleft. His foot is rather thick than long, and his inferior limbs are firm and round. He has a broad, arched chest, a strong voice, and the faculty of retaining his breath for a considerable time without inconvenience or difficulty. In general there is a complete harmony of proportion among all parts of the body. His senses are good, but not too delicate. His pulse is slow and regular.

"His stomach is excellent, his appetite good, and digestion easy. The joys of the table in moderation are to him of importance. They increase the vigour of his system, and tune his mind to serenity, while his soul partakes in the pleasure which they communicate. He does not, however, eat merely for the sake of eating, but each meal is an hour of daily festivity—a kind of delight, attended with this advantage among others, that it rather increases than diminishes his riches. He eats slowly, and has not too much thirst. An insatiable thirst is always a sign of rapid self-consumption.

"In general he is serene, loquacious, active, susceptible of joy, love, and hope, but insensible to the impressions of hatred, anger, and avarice. His passions never become too violent. He is fond of employment, particularly calm meditation and agreeable speculations—is an optimist, a friend to nature and to domestic felicity—has no unbounded thirst after the honours or riches of the world, and banishes all unnecessary thoughts of to-morrow."

In the earliest ages we are told that human life was protracted to a very extraordinary length; but how few in these latter times arrive at the period which nature appears evidently to have marked as the limits of man's earthly existence! Man seems designed to rise with the sun, and to spend a large portion of his time in the open air, to inure his body to robust

exercises and the changes of the seasons, and to support himself upon plain and simple food, taken at such intervals as the calls for appetite indicate. But how completely has Art defeated the gracious intentions of the Great Creator, and, by enslaving man to all the blandishments of sense, left him an easy victim to his own folly and caprice!

To compare the results produced by our artificial modes of life with those indicated by nature, selecting the examples even from the longest livers, would afford a very striking contrast, and present one of the strongest reasons why instances of longevity are so very rare amid the refinements and luxuries of cities.

Year after year registrars' reports stated that, from preventable causes, thousands of persons are dying, and yet these diseases are not averted. Year after year has it been repeated that, from preventable causes, death is twice as busy among the poor as among the rich, and yet a double number of the poor die on!

One hundred thousand suffering fellow creatures are annually perishing in England from diseases that can be remedied! It is impossible to calculate the national expense of this mortality, the pauperism, the destitution, the widowhood, the orphanage, the crime, the taxes on public and private benevolence, which such wrongs must occasion.

And yet we cannot feel surprised that such a sacrifice of human life prevails, when we consider the nuisances on every side with which we have to contend. From our manufactories of oil of vitriol (sulphuric acid) fumes of sulphurous acid, and even of sulphuric acid, are occasionally poured out into the surrounding air. The makers of common soda (alkali-makers as they are called) still in some places discharge from their tall chimneys those vapours of muriatic acid which have so often blasted, not only the yearly crops, but permanent hedgerows and full-grown plantations. The smelters of lead and copper vomit from their furnaces fumes of deadly arsenic, of zinc, of sulphurous acid, and even of lead itself, which sensibly affect both animal and vegetable life in their neighbourhood. The soap and candle-makers dissipate into the air the volatile, fetid substances which naturally exist in long-kept and rancid fats. The distillation of wood for the manufacture of wood-vinegar, or pyroligneous acid, as it is called, is often attended by the emission into the surrounding air of disagreeable and unwholesome fumes. The manufacturers of glass, even of plate and crystal glass, when their operations are carelessly conducted, discharge from their cones unpleasant, and, it may be, injurious smells.

This is a frightful, but true picture of the evils against which we have to struggle occasionally, somewhat relieved by acts of parliament, which do not, however, strike at the root of these nuisances, merely mitigating, but not removing them.

To secure the public health great measures are required, and must, in the course of time, be adopted. In the words of the Registrar-General:—

“The primary objects to be kept in view are the careful exclusion of all unnecessary animal and vegetable matter, the immediate removal of residual products, and the dilution of inevitable exhalations. Unwholesome manufactories should be excluded from densely peopled districts; pigs, sheep, horses, cattle of every kind, sometimes affected with epizootic diseases, should not be gathered in market-places within the city, or slaughtered in houses where the blood and offal can never be effectually removed. The supply of pure water and a system of drains and sewers are requisite.

“Wide streets, parks, and squares, with spacious houses, would render ventilation easy, and secure the dilution of poisonous emanations; but the ground is valuable, and building is dear in cities. Hence there has been a constant and an unopposed tendency in landlords to accumulate the greatest number of houses on the least possible space in poor districts, and the families of artisans are driven to crowd in small, low, close rooms. The evils from this source are one of the contingencies of poverty and ignorance; they may, however, be met by opening in the densest neighbourhoods a certain number of wide streets, through which the collateral streets would be ventilated by fresh atmospheric currents. As information spreads among tenants, landlords will naturally render the districts in which their property lies healthy.”

For the comfort of those who reside in cities, and who may be under the popular impression that health, even with hygienic precautions, is not easily attained, the same competent authority remarks that “the first writers who established satisfactorily the high mortality of cities took a gloomy, and, perhaps, fanatical view of the subject. Cities were declared vortices of vice, misery, disease, and death—they were proclaimed the graves of mankind. The population of the country, it was said, was drawn to them to be sacrificed; and those who entered left all hope behind, for no prospect of health in cities was beheld. The registers show, however, that while the mortality is increased as much as they stated, the apprehensions into which they were betrayed as regarded the future were ill-founded. There is reason to believe that the aggregation of mankind in towns is not inevitably disastrous. Health and life may be preserved in a dense population, provided the density be not carried beyond certain limits. Of this the nature of the causes to which the mortality is due, as well as the rapid improvement in the health of London within the last two centuries, is presumptive proof.

“The city population of England is greater than that of any

other country in Europe, and it increases more rapidly than the population of the rural districts. In this there is nothing to regret; for, if the general progress of civilisation compensated the loss of life in the cities of the ancient world and of the middle ages, the advantages of cities are not less evident in the present time."

From these remarks, and from general observation, it follows that it is chiefly to our own efforts that we must rely for freedom from illness and disease. Much has been done, and greater endeavours will still be made for the public benefit; but it is to our individual exertions we must, under the Divine blessing, trust for exemption from ill-health. The correct principles of hygiene must be carried into every home, and put into active exercise. Without this, all the acts of parliament and police regulations that are passed cannot prevent the enemy stealing upon us in our own citadel, and undermining the constitution.

By a strict attention to the following pages the reader will be enabled to provide for many emergencies, particularly useful where a medical practitioner may not be near at hand. The hints and precautions respecting bathing, diet, clothing, and other essential matters may tend to ward off impending evils, and prepare the way for a proper knowledge of sanitary principles. Many admirable works on the preservation of some one or other important faculty of mind or body have been published, and books are not wanting on the subject of health generally; but the high price at which these are published, and the great amount of professional learning bestowed upon them, render these publications inaccessible to a very large portion of the public. To give plain and useful instructions on sanitary topics, without intruding upon the province of the medical practitioner, has been our object, and also to place them within the reach of the most limited means. We have not attempted to give receipts in medical or surgical cases, which can only be determined by circumstances, and of which the best judge must be the professional family attendant.

In concluding our introductory chapter, we may infer from all that has been said and written on the subject of this precious boon—from the experience of every age and every clime—that "they are the most healthy who have nature for their cook, hunger for their caterer; who have no doctor but the sun and fresh air; and no other physic than temperance and exercise," thus making health indeed

"The poor man's riches, the rich man's bliss."

HEALTH FOR THE MILLION.

CHAPTER I.

THE SKIN.

" 'Tis beauty truly blent, whose red and white
Nature's own sweet and cunning hand laid on."

SHAKESPEARE.

IN order to make the necessity of personal cleanliness more apparent, we will append a few plain observations on the SKIN—a subject, indeed, with which all persons ought to be familiar, from the important relations it bears in the science of health.

The impressions made on the skin by the contact of foreign substances are transmitted to the brain by means of the nerves coming from this latter, and give rise in the mind to the sensations of roughness or smoothness, hardness or softness, heat or cold, according to the property of the substance applied. In other words, the skin is the seat of the sense of touch, and, like all the other senses, is capable, when strongly impressed, of acting powerfully on the brain, and producing great mental disturbance, accompanied in some cases with convulsions, and in others inducing insanity.

The *skin*, as commonly seen by us in a healthy and

natural state, is not one membrane or layer covering the inward parts. We ought to represent it to ourselves as composed of two membranes, with a soft, semi-gelatinous layer intervening. The deepest, or that next to, and immediately covering, the flesh, is tolerably firm and resisting, and, at the same time, somewhat elastic. It exhibits numerous holes, through which pass, from its inner or lower surface to its upper and outer one, a vast number of nerves and vessels (some carrying blood, some a colourless fluid) of thread-like fineness, which are then spread in a reticulated or net-like fashion over this upper surface so as completely to cover it. The proof of this is seen in the fact that, although this layer or membrane of the skin has of itself little or no colour or sensibility, yet it is impossible to apply a pin's point to any part of the surface without its producing sensation, and, if carried deep enough, drawing blood. The vessels and nerves thus penetrating and spread over it bear the same relation to this membrane that embroidery, composed of thread closely worked and crossed in various directions, would to the muslin which served for its ground. Thus furnished, this part is called the true skin, because it is the seat of touch; and on and through it are performed all the processes in which the skin, in general, is supposed to bear a part.

Exterior to this, and spread over it, is the soft, semi-gelatinous or pulpy layer already mentioned. It is the seat of colour, being white, or nearly so, in the European races, and black in the African. It is also much thicker in the latter than the former. In all the races the true skin is of the same colour; the difference consists in the mucous or pulpy layer above it, just as if different pieces of embroidered muslin, originally all white, were each to receive a different colour by rubbing over it a semi-fluid varnish which should only cover the outside without penetrating through, or dyeing the tissue of the muslin or the thread used in the embroidery.

External to this mucous or soft layer is spread the

outer or scarf-skin, or cuticle. This is the last of the membranes or coats: it is very thin, of a hard horny texture, similar to the nails, and transparent, so as to show the colour of the layer beneath it already described. It exhibits numerous perforations for the hair, and orifices through which oozes out the fluid of perspiration formed from the minute capillary tubes of the true skin already mentioned. As the part which is in immediate contact with external substances, the scarf-skin serves to break the violence of their shock, and prevent the impression produced by them from being too sensible and painful. If, by unaccustomed friction, blisters are formed on the hands and feet, and we peel off, immediately, the skin which has been raised up, it is the outer or scarf-skin only that is removed; the true skin, red and tender, is seen beneath, sometimes with a very thin layer of colourless mucus on it, and sometimes entirely denuded. This serves both to show the distinct nature of the two membranes or coats composing the skin, and that the inner is the really important one, while the outer or horny has no sensibility or vitality, and is merely a shield to the former. It is, therefore, thinner where the touch is most delicate, as at the ends of the fingers.

Independently of its being the seat of the sense of touch, the skin has other offices, by which it is closely connected with the stomach in digestion, and the lungs in breathing. We must remember that it does not merely cover the body entirely, like the shell does the egg, but that it is continued into the nostrils and mouth, and becomes, by a slight change, the membrane which lines the stomach and the lungs. The surface of the tongue will give no bad idea of the true skin when the outer or scarf is removed. Little prominent buds, as it were, are seen in both the tongue and the skin; they are called papillæ, and are formed by a projection outwards of little knots of fine vessels and nerves, which have perforated the membrane from its lower side, and are even visible and felt through the scarf-

skin when it is constricted by cold, forming what is called goose skin.

The resemblance between the skin, and the membrane lining the mouth and stomach, almost amounts to identity in some animals of the polypus tribe, since, if they are turned inside out, what was skin serves for stomach, and the membrane of the stomach is converted into skin. The connection between, and even sameness of, the skin and the membrane to which the air is applied in the lungs in breathing, is evinced in the circumstance of the same or outer surface of the body serving for both purposes, as in the leech. It has no lungs, and the air acts through its skin on the blood.

Some cold-blooded animals, such as frogs, will survive longer the entire extirpation of their lungs than they would the removal of their skin. They barely live if air be only supplied to the former, and not to the latter; in other words, they must breathe both by their lungs and their skin. In warm-blooded animals, particularly in the human species, the skin exhales the same kinds of vapour, afterwards condensed into sweat and air, as are given out in breathing from the lungs, and absorbs, or allows to pass in, through the mouths of very fine, hair-like tubes in the true skin, air and vapour like what is necessary to be drawn into the lungs in breathing.

In addition to the parts already mentioned we meet, in certain regions of the skin, with small bodies like millet seeds, called sebaceous glands, interspersed with the papillæ, or projecting blood-vessels and nerves, and from which comes an oily and inflammable fluid. It is this which makes the water collect in drops on the skin when we come out of the bath. If we raise, by means of a blister, the scarf-skin, and peel it off, the true skin beneath, as already remarked, will be exposed, and in this instance red and inflamed. Experience shows that certain medicines applied to this denuded surface will produce the same effect as if taken into the stomach. Having thus described the nature and

properties of the skin, it will be seen how imperatively necessary it is that it should be preserved in a healthy condition by *washing it*, both in a proper manner and with proper means. For the generality of cutaneous diseases there is not, perhaps, a better recipe in the pharmacopœia than is to be found in one of the periodical papers of the *World*. "Take of *pure clean water quantum sufficit*, put it into a clean earthen or china basin; then take a clean linen cloth, dip it in that water, and apply it to the part affected night and morning, or oftener if required."

The most common and simplest of remedies is pure water. This should be habitually used at such a temperature as to give the sensation of slight coolness. If very cold, besides the unpleasant sensation produced, it roughens the skin, hardens it, and exposes it to an unequal and undue action both from the hands in washing and the towel in wiping it. The reaction, too, when the blood driven from the part by the cold returns, is too violent, and an unpleasantly rough and hard condition of the outer skin ensues, causing it to crack or chap, and often laying the foundation of very troublesome sores.

Water at too high a temperature has an equally prejudicial effect, by softening and detaching too many of the scales, leaving the scarf-skin too thin, and insufficient to perform its use as a protector to the sensitive layer beneath; besides which it has an effect similar to water too cold in disturbing the circulation beneath, and inducing the same chapping, and very frequently ugly eruptions.

As an assistant to water we use *soap*—a compound of a caustic alkali with an oil or fat. The alkali has a strong affinity to unite with animal matter, and the result of a perfect union of the two, in such proportion that neither is in excess, is a mild, unirritating composition. Soap is a compound of the two, but in such proportions that the alkali is in excess; and the propensity, so to speak, of this excess to combine with the oil upon the skin, and with the surface of the scarf-

skin, gives the soap its cleansing qualities. Common yellow soap is, perhaps, the best in use. Highly perfumed soaps should be avoided, as they are of an irritating nature.

If soap should cause an unpleasant irritation the fault may arise from some temporary derangement of the system, which should be combated by the proper remedies.

In *drying*, the roughness of the towel must be proportioned to the sensitiveness of the skin. Some will bear a coarser cloth than others. Two towels should be used, one of sufficient roughness to produce an agreeable glow after the necessary friction; next a coarse towel, but of loose texture and absorbing quality, should be used more gently and slowly over the body until perfect dryness is produced.

The use of *flesh-brushes* is an effectual means both of preserving health and of lessening the infirmities of old age. By brushing the ears and behind them deafness may be warded off, and in some instances has been cured. By the same means sore throats may generally be prevented. Any weakness in the arms may be relieved by brushing them night and morning; and by using friction of the same sort to the stomach and thighs a degree of vigour is given to the body, of which many persons are not at all aware, otherwise the practice would be more generally adopted. The feet, also, should be rubbed with the flesh-brush after they are cleaned.

Breathing an impure air soon affects the skin, which in such circumstances becomes of a dirty or muddy white, and in extreme cases, as in crowded assemblies, holds of ships, mines, and manufactories, of a livid or leaden hue. So intimate is the connection between the free play of the lungs in breathing, and the healthy colour of the skin, and of course its beauty of appearance, that if, from any cause whatever, or indolent lounging within doors, improper attitude by stooping, &c., or tight lacing, the former be impeded, the skin will assuredly suffer.

The state of the *nervous system* influences greatly the appearance of the skin. The bite of a viper or other venomous reptile, which operates with such power on this system, promptly discolours the skin, producing a universal jaundice. Not less sudden and even terrible are the effects of the poison of intemperate passions, as of anger, hate, envy, jealousy, on the complexion. Paleness, followed by a distended and flushed face, ending in a sallow and even saffron hue, are some of the changes produced by these fits.

Hence we may learn the necessity of obedience to the fixed laws of creation, both in our search after physical enjoyment and moral and mental gratification, if we would enjoy health, and exhibit those appearances of strength and comeliness which few, to whatever school of philosophy they may belong, entirely overlook.

A still more fruitful source of defective or morbid coloration of the skin, and of its disfiguration by boils and blotches, is from *imperfect digestion*. The deep suffusion of the cheeks after heating food or drinks, and the eruption which at times follows almost immediately after eating shell and other kinds of fish, or crude fruits, are familiar examples of the influence of the stomach over the cutaneous surface. Whatever article, then, of difficult digestion, whether it be solid or fluid, which is taken by the dyspeptic, or those of weak, nervous habits, will, by distressing and irritating the stomach, correspondingly affect the skin, and render it rough and discoloured. Woe to the person who, ignorant of this order of succession, mistakes the eruptions on the skin for the chief or primary disease, and applies to it washes, unguents, pastes, or powders, which have the pretty term "*cosmetic*" prefixed to them. Aggravation of the first malady, either of the lungs or stomach, or disease of the brain and convulsions, will be the consequence of this rashness, this belief in every quack, in opposition to the lessons of experience and sober judgment.

With regard to *cosmetics*, fresh air, active exercise

out of doors, regular hours, plain light aliment, frequent ablutions, a well-regulated mind, and animated piety, are the best cosmetics, and give a charm superior to all the blandishments of art and tricks of fashion.

The *eruptions* which are thrown from the skin are the process by which nature frees herself for a time from the effects of superabundant nutrition, by which means she often saves internal organs from a dangerous irritation. This is proved by the certainty and safety with which the whole of these cutaneous affections may be speedily removed by improving the state of the digestive organs, lessening the quantity and simplifying the quality of the food, and by the judicious use of the warm bath. On the other hand, when nature is interrupted in her work, and these cutaneous blemishes are incautiously repelled by external applications, the irritation is almost certain to fall on some internal organ, and there cause a painful sensation or an inflammatory action, according as the nervous or vascular structure of the part be predisposed to disease. Thus in one constitution, on the repulsion of an eruption from the skin, the irritation is transferred to the lungs, and there excites pulmonary consumption; in another it is transferred to the mucous membrane of the stomach, and heartburn, or pain in the stomach, or indigestion, or even chronic inflammation of this organ, may ensue; in a third the liver becomes the seat of the translated irritation, and the various phenomena of bilious or hepatic derangements are developed. The intestines, the kidneys, nay, the coverings of the brain itself, may, and often do, suffer in this way, with a host of corresponding miseries. All these, however, may be avoided by removing the cause or origin of the cutaneous eruption as seated in the digestive organs, when the effect will soon cease.

An efficient agent for removing *freckles* is a solution of the liver of sulphur, in the proportion of ten grains to an ounce of water. The drawback to the use of this is the odour, which is exceedingly disagreeable. When

other applications fail it may, however, prove of service. By using it at night the disagreeable odour may be prevented from annoying others. Mr. Erasmus Wilson gives the following recipe:—Elder-flower ointment, one ounce; sulphate of zinc, twenty grains. Mix it well. Rub this well into the skin at night, and in the morning wash it thoroughly away with an abundance of soap, and apply a lotion made as follows:—Infusion of rose leaves, half a pint; citric acid, thirty grains.—mixed. If these applications should irritate and cause roughness of the skin use as a lotion—Almond mixture, half a pint; Goulard's extract, half a drachm.—mixed.

If the spots are attended with constitutional derangement a physician should be consulted.

In treating *chaps* the first thing necessary to be done is to soothe the irritated state of the skin. To do this the affected surface should be kept at one uniform temperature as much as possible. In washing the part neither cold nor hot water should be used, for the one would for a time depress and the other elevate the temperature, and the consequent reaction would increase the affection we wish to combat. The best temperature is that at which the part would feel the least shock on being touched with the water. If soap is required the soft creamy lather made by putting Castile soap into warm water is the best. It should be smeared on gently with a soft linen rag, and after a minute or two as gently removed by similar means.

Having cleansed the part to reduce the inflammation, in some rare cases a poultice may be necessary, and, if so, one of bread and milk will serve best; but, generally, smearing the surface with warm mutton tallow or fresh oil of sweet almonds will prove equally efficacious, and much more convenient. When so smeared the part should be covered with a soft rag, but not warmly wrapped up. Having thus reduced all the adventitious inflammation, and merely left that which is incidental to the exposure of the scarf-skin, the affected surface

should be bathed with some weak astringent fluid—tea of the strength usually drunk would be useful.

Persons troubled with chaps should protect the part liable to be affected from atmospheric influences. If the lips, they may be smeared before going into the cold with almond oil. The hands should be defended by the softest and warmest gloves.

Mr. Erasmus Wilson gives the following receipt for obstinate chapped hands or lips:—Pure olive oil, one ounce; yellow bees' wax, half a drachm. Melt the bees' wax in the oil with a gentle heat, taking care not to burn it, and when melted stir in new honey, one drachm; white flowers of zinc, half a drachm. Keep stirring until cold, or the zinc will fall to the bottom.

This should be briskly rubbed in, and the part then wiped with a soft towel. When the hands are the seat of the trouble the most convenient course, though liable to some objection, is to wear during the night gloves saturated with oil of sweet almonds. The hands should be washed before putting on the gloves.

Chafes of the Skin, that is, a removing of the epidermis by some violent friction against it, with possibly bruising and irritation of the sensitive skin, resemble chaps somewhat in the condition of things existing, and should be treated much in the same way. If there is simply a raw surface use astringents alone. If there is an inflamed surface use cloths dipped in cold water until the inflammation is reduced. If the parts beneath the surface are inflamed a poultice will be necessary; but take care not to keep it on longer than is sufficient to reduce the inflammation. When the inflammation is reduced the raw surface should be treated with an astringent wash.

Children and old people, or those who are weak and delicate at any age, particularly females, are most subject to *chilblains*, which arise from deficiency of vigour in the fibres of the feet. Exposure to great cold, or currents of cold air, will produce chilblains even in the most robust. At first there is redness, swelling, a sense

of tingling, and intolerable itching, which is increased by heat. As it proceeds the part becomes blue, and the painful itching excessive. Then little vesicles arise, burst, and leave the part sore and ulcerated, often eating deeply into the flesh, and even to the bone, and in this stage the sores are extremely obstinate and difficult to cure, and mortification may ensue. Such is the course of the disease if neglected or badly treated.

To prevent chilblains never run rashly to the fire when your hands or feet are very cold, nor expose your hands and feet suddenly to cold when they are warm and perspiring, as in either case chilblains will probably arise. Hence a cold current of air let into a warm room by the opening of a door is, among delicate females, the most common cause of the complaint; or sitting much by the fire in cold weather, as a current of cold air is always blowing towards the fire even when the doors are shut. Strengthen the feet and hands by sponging them night and morning with cold water, and vinegar or salt added to it, rubbing them for some time with the hands afterwards. When the tingling and itching are first felt bathe the part with ice-cold water, or rub it with snow till the itching ceases. When proud flesh arises, and in all cases where the chilblains assume a serious character, the best medical advice should be obtained.

CHAPTER II.

BATHING.

" This is the purest exercise of health,
The kind refresher of the summer heats ;
Nor when cold winter keens the bright'ning flood,
Would I, weak shivering, linger on the brink
Thus life redoubles."

THOMSON.

" How many a time have I
Cloven with arm still lustier, breast more daring,
The wave all roughen'd ; with a swimmer's stroke
Flung the billows back from my drench'd hair,
And laughing from my lips the audacious brine,
Which kiss'd it like a wine-cup rising o'er
The waves as they rose, and prouder still
The loftier they uplifted me."

BYRON.

THE BATH naturally claims our early attention ; and here we may notice how important this essential requisite to health was considered by the ancients. The accounts of the Roman baths appear almost fabulous, did not vestiges still remain to prove they were worthy of a people who boasted of conquering the world. It is said that in the imperial city there were 856 public baths. Fabricius adds that the excessive luxury of the Romans appeared in nothing more visible than in their baths. Seneca complains that the baths of plebeians were filled from silver pumps, and that freedmen trod upon gems. Macrobius tells us of one Sergius Oratus, a voluptuary, who had pendent baths hanging in the air. After Pompey's time the mania for bathing was carried to great excess, by which many persons were ruined.

Some considered they could not eat without taking a bath previously. The Emperor Titus is said to have lost his life in this manner. Hence Pliny inveighs severely against those physicians who held that hot baths aided the digestion of food.

The Greek baths were usually annexed to palæstræ, or grounds for gymnastics, of which they were considered a part. These baths consisted of seven different apartments, viz., the cold bath; the room where the bathers were anointed with oil; the cooling room; the stove room; the vapour bath; the dry stove room; and the baths called *calida lavatio*.

Not to weary the reader's attention, we will at once proceed to offer a few observations on bathing, which may, perhaps, prove serviceable. With regard to the kind of bath to be used, this must greatly depend upon convenience. A good iron tray, suited for the dressing-room or chamber, can be readily obtained for a few shillings. In the use of the water the best thing is a coarse sponge. Select a whole one, which is round and somewhat flattened. This is much better than a piece with sharp angles, that make points for the water to drip from. They may be readily found large enough to hold a quart, and these are a good size; larger they are unwieldy, smaller they take too long to drench the bather. Coarse ones are emptied more readily than fine ones. A common flat glazed pan, with two or three brass wires stretched across it to support the sponge, and raise it from the bottom so that it may drain, is the best thing to keep it in when not in use. When the bath is over, the sponge should be squeezed as dry as possible to keep it from rotting. To prevent cold during the operation of sponging it may be performed under a loose dressing-gown.

The following directions may be useful to those who *sponge the person* each morning:—Dip the face two or three times in a basin of cold water. The eyes may be either open on immersion, or, as it may be easier on beginning, while under the water. After this water

should be squirted briskly into the eyes with a syringe. On the first trials they may be closed and opened immediately after the dash, but they will soon be able to bear the shock when open. Water should be squirted against each ear. Next with the hands, and using soap, wash well the armpits, the back of the neck, behind the ears, the arms up to the shoulder, the breast, loins, and entirely round the waist. After having well dried with a very coarse cloth you may finish with a fine towel, and then rub with a hard flesh-brush over the body wherever you can conveniently reach, particularly the chest, arms, abdomen, and small of the back. The arms should then be thrown back very briskly twenty or thirty times, which will open the chest, and may promote a salutary expectoration. This will altogether occupy, even when well accustomed to it, about twelve minutes, but it will be time well bestowed.

When conveniences for *chamber baths* are wanting a washing tub may be used, and a bath may be taken without making a slop by crouching down in it, and using care in distributing the water.

In beginning the practice of bathing the first essay should be made during warm weather, so that the system may get thoroughly accustomed to it before the cold weather sets in.

The *Cold Bath* is a successful remedy in many chronic diseases, and is highly advantageous as a preventive for young persons whose constitutions are not yet confirmed, and as a general bracer for persons of relaxed fibre, especially ladies. The cold bath, when used by persons in health, increases the tone of the habit, strengthens the digestive organs, and, by diminishing the sensibility of the whole system, and particularly of the skin, renders the body less susceptible of atmospheric impressions from cold, wet, and sudden changes of temperature. Dr. Hooper says, "The great object to be obtained is to produce a reaction from the shock of cold water at the expense of as little

heat as possible; and, when cold bathing does harm in this case, it is because the powers of the body are too weak to bring on a reaction, and the chilling effects remain unopposed. There is a slow, irregular kind of fever, which principally affects persons of naturally a sound constitution, but who lead sedentary lives, and are, at the same time, employed in some occupation which strongly engages their attention, requires much exercise of thought, and excites a degree of anxiety. Such persons have constantly a pulse rather quicker than natural, hot hands, restless nights, and an impaired appetite, yet without any considerable derangement of their digestive organs. This disorder will continue for a long time in an irregular way, never entirely preventing their ordinary occupation, but rendering it more than usually anxious and fatiguing, and often prepares the way for confirmed hypochondriasis. Persons in this situation are remarkably relieved by the cold bath, and generally bear it well; its use should also, if possible, be aided by that relaxation from business, and that diversion of the mind from its ordinary train of thinking, which are obtained by frequenting a watering-place."

It should be carefully borne in mind that invalids, and, indeed, many who would not like to be called so, yet whose vital energies are rather below the average standard, should use cold bathing with great care, and under medical advice. Many have no doubt used it to their manifest prejudice. It is desirable, therefore, that the cold bath should be taken at such times as the vital energies are in good condition—with invalids at their maximum. When even at their height they are not sufficient, the temperature of the water must be raised, so as to lessen the depression produced by cold. Frequently a person will be able to use the cold bath if it is taken immediately upon getting out of bed, when the system is still under the stimulus of its warmth; whilst, if delay be made even for a few minutes, the lower temperature of the room will en-

tirely dissipate this stimulus, and the same bath that, taken more promptly, would have benefited, will have the contrary effect. The best plan for those with whom the reaction is slow is to get back into bed immediately after bathing, and to remain there until warmth is fully restored. This simple expedient has enabled many to continue with benefit a practice that was evidently before prejudicial.

It should also be remembered by all that a bath should not be taken upon a full stomach, nor when the system is violently overheated.

When the shock, as a stimulus to the nervous system in cases of debility, is the principle desired, the water should be very cold, and the time for remaining in the bath should be only momentary, and after the first plunge the bather should leave the bath, and be wiped dry with towels, in order to bring on the reaction. When the object is to obtain the refrigeratory action of the bath with as little as possible of the nervous shock or vascular reaction, as in the case of febrile diseases and local inflammation, the water should not be applied at first at a low temperature, nor suddenly; it should be only cool, and applied with a sponge, repeating the application till the desired effect is produced.

With regard to the length of time to remain in the cold bath, from ten to twenty minutes is sufficient even for the strongest constitution, and is too long in very cold weather. A cold bath in a cold place is far from being comfortable, and after coming out of a bath the body should be dried in a room or place tolerably warm, that the reaction should be encouraged.

It is an error to use the cold-water bath at night, for the frame, after the exhaustion of the day, is not in a fit state to enjoy it. In some cases, however, it may be proper to use tepid water in the morning, and to avoid the relaxing effects of warm water in the evening. Friction of the skin after the bath conduces to a beneficial effect.

The cases of disease for which cold bathing is a

valuable remedy are morbidly increased irritability and sensibility, accompanied with general debility. When there is a tendency to colds and rheumatism the cold bath is an excellent preventive. For this purpose it should be used continually throughout the year, and the chest should be sponged with cold water, or vinegar and water may be substituted in winter where there are not facilities for using the complete bath. Delicate and feeble persons of all ages require a higher temperature of the bath. It is proper for such persons to begin a course of cold bathing by the use of the tepid or temperate bath, or perhaps a glass of wine or a cup of coffee may be taken before entering the cold bath. It is a good rule to wet the head previously to taking the plunge.

It seems that the *Shower-Bath* is altogether a modern invention, and applies to the purposes of the cold bath, and in some cases with peculiar advantage. Dr. Burke remarks, "I consider the shower-bath is the most powerful agent in invigorating the human frame; in it we have one of the most effectual and economical stimulants which the whole range of medical experience affords. It is not, of course, to be indiscriminately persevered in, nor is it suited to those whose lungs are affected, or who have had organic affections. With these exceptions, there is scarcely an individual, from the prince to the peasant, who may not derive lasting benefit from it. Let the shower-bath be used but for one week, and I maintain that any one who has, even for that short time, felt the increased tone of muscular power and buoyancy of spirits which it imparts, will not easily be induced to neglect it afterwards. To strong, robust people I should direct it early in the morning; to persons of delicate fibre at mid-day: its good effects are increased by the use of flesh-brushes directly afterwards. For those whose constitutions will not bear the shower-bath a good substitute remains—the *Cold-air Bath*. This is effected by undressing completely, and rubbing the body for some time with a

coarse towel; a flesh-brush should also be used. By this means we regulate the secreting surface of the skin, impart tone to the subjacent muscles, and energy to every fibre of our frames."

Many persons complain that the severity of the shock of the Shower-bath, received upon the head, leaves a very unpleasant effect for some time after. This may readily be prevented by using a tall conical cap, say fourteen inches high, which, parting the stream some distance above, still lets it flow down over the person. The best material to make this of is a thin sheet of gutta-percha rolled into a cone, and stitched down one side. The oiled-silk cap commonly used in bathing does not defend the head from the impulse of the water in falling, and it splashes much of it off from the rest of the person.

The best time for using the Shower-bath for hygeian purposes is immediately after rising in the morning; but in weakened habits two hours after breakfast is better.

There are several kinds of Shower-baths in use. The best descriptions vary in price from three to five pounds. A cheaper kind, which may be purchased for a few shillings, consists of a small cistern suspended from the ceiling by a line, and balanced by a weight. A Shower-bath may easily be made on the following plan:—A wooden tub will do for the lower receptacle, to the side of which may be nailed two or three uprights of wood, having at the top some kind of pail with a perforated bottom, or a large tin cullender would answer, into which an attendant on a pair of steps might pour water; a hoop at the top of the uprights might support a curtain of calico. Even simpler forms may be contrived by persons of ingenuity.

A Shower-Bath for Children is in use, consisting of a bell-shaped tin vessel, the bottom of which is pierced full of holes, a hollow tube rising from the top, the aperture of which can be closed by the pressure of the finger. To use it the bell must be sunk in a pail of water, and when it is full the forefinger is to be pressed

hard upon the top of the tube, so as to close it perfectly. The bell may now be raised out of the water, and by means of the pressure of the atmosphere, as in the case of the barometer, it will continue full until it is lifted over the head of the child, when, by withdrawing the finger from the tube, the water is discharged in a sudden shower through the numerous holes in the bottom of the bell.

For the purposes of cleanliness in particular the *Tepid Bath* is of great utility. The range of temperature extends from 85° to 92°, but in fixing the degree of temperature every person should be guided by his own sensations. In the general debility and exhaustion, often accompanied by restlessness, consequent on long and severe illness, fomenting the hands and feet with warm water will often soothe and refresh the patient, and induce sleep when other means have failed, and bathing the feet is often practised to subdue irritation in fever. For young children, especially those of a delicate and fragile constitution, the Tepid bath is peculiarly adapted; but as children grow, and gradually acquire strength, its temperature should be reduced until it reaches that of the usual cold bath. It is particularly serviceable during the painful and often dangerous progress of dentition.

The best time for using the Tepid bath is noon. Brisk exercise in the open air should be taken afterwards. It is not proper immediately after a meal, or when the person is much excited by wine: before using it the heat of over-exercise, or much excitement of mind, should be suffered to pass off. For the mere purposes of cleansing soap is requisite.

Warm Bathing appears to be particularly well calculated to relieve those complaints which seem to depend on an irregular or diminished action of any part of the alimentary canal, and the state of the skin produced by immersion in warm water seems highly favourable to the healthy action of the stomach and bowels.

The constitutions of children seem more extensively relieved by the Warm bath than those of adults, and this remedy appears more generally applicable to acute fevers in them than in persons of a more advanced age. When the Warm bath produces its salutary operation it is almost always followed by an easy and profound sleep. In paralytic affections of particular parts the powerful stimulus of heated water is generally allowed, and in these cases the effect may be assisted by anything which will increase the stimulating properties of the water, as, for instance, by the addition of salt. In these cases much benefit may be expected from the use of warm sea-baths. The application of the Warm bath to certain parts of the body often produces the most quieting effects. The cases in which the Warm bath is likely to be attended with danger are particularly those where there exists a strong tendency to a determination of blood to the head, and apoplexy has been thus sometimes brought on. The lowest temperature will be required for cutaneous complaints, and to bring on relaxation of the skin during febrile irritation; the warmer temperature in paralysis. More heat should be employed on a deeply seated, than on a more superficial part.

The effects of the Warm bath vary with the temperature, which ranges from 92° to 98°. When the heat is about 92°, though the first effect is slightly stimulating, yet, when time is given for that influence to subside, it is gradually succeeded by soothing sensations, which generally allay slight degrees of local irritation of the nervous system. At a higher temperature, but under 96°, it has sometimes been imagined that the warm bath relaxes and weakens, whereas it produces a contrary effect; it is found to raise the spirits, to mend the pulse and appetite, and to refresh and invigorate the whole frame.

The application of the Warm bath, owing to its beneficial influence, is universal, and suits all ages and sexes. It is particularly applicable to the earlier and

later years of life, to females, and those of feeble constitutions. It has even been advised as a means of retarding the advances of old age. Dr. Darwin informs us that he recommended it for this purpose to the celebrated Dr. Franklin, who continued the use of it until his death, which took place in his eighty-fifth year.

The time of immersion in the Warm bath should be varied according to the temperature of the water and the feelings of the patient. In a bath of 94° to 96° a person may remain fifteen, twenty, or thirty minutes. In a bath of 98° or more it will not be proper to remain so long. When sweating is desired, which will seldom happen except in cases of local inflammation, the Warm bath should be used in the evening, and the patient should immediately afterwards be put into a warm bed, and remain there until late in the next morning; but in all cases where perspiration is not required the best time for using the warm bath is in the forenoon, about two or three hours after breakfast. The skin should be well dried on emerging from the bath, and active exertion should be avoided for some time.

The Hot Bath should be used only under medical advice. As a general rule its temperature may be considered to range between 98° and 106° Fahrenheit. The effects of the Hot bath are a spasm in the skin in some degree analogous to that excited by the cold bath. In a short time this cutaneous spasm is succeeded by a livid excitation, redness, afflux of blood, and swelling of the surface of the body. This state of stimulation extends to the heart, which contracts with rapidity, and is followed by a throbbing, frequent pulse.

The applications of the Hot bath are almost wholly medicinal.

The Vapour Bath and *Hot-air Bath* form valuable remedies in a variety of cases, but are attended with danger in the hands of ignorant or interested persons. Medical advice should always direct their application. It should not be omitted, however, that hot air, and especially vapour, can be borne in contact with the skin

without exciting any unpleasant feeling at a much higher temperature than water, which is owing to the rarity of the former. Even in disease these baths require to be used with caution; but in this country, and in health, they may be almost universally superseded by milder and safer means, which attain every hygienic purpose in a more direct and sure way.

Medicated Baths, generally formed of pure rain water impregnated with mineral, vegetable, and animal substances, are frequently prescribed by physicians for complaints arising from nervous or muscular debility, and under medical guidance are eminently serviceable.

Both in ancient and modern times it has been customary to add scent to the bath—a luxury, however, of which few need care to avail themselves; for pure water, after all, is the best renovator of health. Eau de Cologne and rose-water are the least injurious to the skin in cases where scent is preferred.

Anointing the Body with Oil, as is still practised in the East, although distasteful to our habits, is in some instances of great benefit to the constitution, especially to persons exposed to the rays of the sun in a warm climate, as we see by the journal of Dr. Leichard during his travels through the hitherto unknown interior of Australia, who anointed his body and those of his companions with the fat of the birds they killed, and found it indispensable to their health and comfort.

Sea-bathing possesses so many advantages in regard to health that we need not enlarge upon the subject. We will merely offer a few hints. The periods of the year best suited for this delightful object are the summer and autumn, when the temperature of the water on our shores varies from 55° to 70°. The time of day for bathing in the sea must depend upon the locality and the state of the tide. In general, however, the best period is about noon, or two or three hours after breakfast, if the sun is not too powerful. A great addition to the comfort of the patient would be a knowledge of the art of *swimming*, which is unfortunately too

rare among the fair sex. Much of the enjoyment of the sea-bath is lost by a lady being reduced to undress and dress in a confined bathing-machine, and then to be driven out to sea in a manner calculated to create terror and dismay. Any person can learn swimming in a short time by taking a lesson from a frog or a dog that may be floating about in the water. A little observation will show that our arms and legs should be moved in the same way, and practice will prove how easy and delightful are such movements. One rule is enough—never to raise the hands above the ear, and there will be no dread of sinking. What greatly retards a woman in such exercise is the description of *bathing-dress* generally adopted in our country, viz., that of common thick blue or grey flannel, which in the space of a few minutes becomes so saturated with water as to weigh down the body and impede progress greatly. We would, therefore, advise all ladies who are inclined to learn swimming to adopt the dress worn by Frenchwomen for this purpose, consisting of drawers and a short dress over, made of grey or brown serge, and, after practice has rendered our fair friends perfect, we are sure they will liberate themselves from such trammels as bathing-machines, and freely enjoy the element God has given for our use.

After undressing, the body, as quickly as possible, should be thoroughly wrapped in a large dry flannel gown, which should not be laid aside till the very moment previously to going into the water. By this means the shock of immersion will be avoided, and that salutary glow which ought always to succeed bathing may in general be insured. Before bathing in the sea it is an excellent precaution in the young and delicate gradually to prepare themselves by previously using the *tepid bath*, at a temperature commencing at 90°, lowering 5° each time, and terminating at 65°.

We should never begin to bathe in the sea until two or three days after having arrived on the seacoast. Sea-bathing should not be taken after great fatigue, as

coming from a long journey—nor after the body has been long exposed to great exertion, and has experienced lassitude, debility, or chilliness—nor if there is any inward determination of the fluids to the head or the lungs. It is hardly necessary to add that to rush into cold water if at all unwell, or on the day that medicine may have been taken, is dangerous in the extreme.

Persons of delicate or feeble constitution should bathe (if allowed by a medical practitioner to take sea-baths) on alternate days, rather than for many days consecutively. Daily bathing is frequently found productive of lassitude, accompanied by a manifest wasting of the body.

Attention should be paid to the nature of the *bathing-place*. A bottom of clear sand is to be preferred. Seaweeds are to be avoided, for they frequently contain a species of pointed shell, which is apt to inflict painful wounds if trodden upon.

Upon coming out of the water the body should be *wiped dry* with a somewhat rough cloth, and the ordinary dress quickly resumed. It is more necessary to replace the usual vestments quickly than to be extremely anxious to have the surface of the body completely dry, as any wetness from salt water is not likely to be prejudicial.

After Bathing use Moderate Exercise, to promote the return of the heat of the body, taking care that it should neither be violent nor too long continued.

If chilliness occasionally ensues, breakfast soon after bathing in the morning; or, in the forenoon, some warm soup or broth may be taken. Indeed, if immersion, instead of being succeeded by a glow on the surface of the skin, is followed by chilliness, languor, or headache, bathing in the sea should by no means be persisted in.

During a course of sea-bathing, and even when the warm sea-water bath is used, friction with a hair-brush or coarse woollen gloves ought not to be omitted. It may enable a patient to continue the course, when otherwise he must have given it up.

A few more words on *Swimming* may be useful here. Those who have acquired this healthy art should never fail to practise it while they are in the water, for, besides the uninterrupted immersion of the body, the muscular exertion required in swimming tends greatly to keep up the balance of temperature, which is lost by placing the body in a medium so much colder than itself.

It should be a constant rule, however, even to the most expert swimmer, never to bathe in the sea, in a lake, or in a river, without having a boat near him, or taking another person with him who knows how to swim. It is certainly a weakening exercise, and many who have remained too long in the water have been so much enfeebled by it as to be scarcely able to stand when they came ashore; and if this weakness or a more fatal cramp comes on at sea, or even in fresh water, the consequences must be dangerous in the extreme.

CHAPTER III.

DIET.

"What, and how great the virtue and the art
 To live on little with a cheerful heart,
 (A doctrine sage, but truly none of mine,)
 Let's talk, my friends, but talk before we dine;
 Not when the gilt buffet's reflected pride
 Turns you from sound philosophy aside;
 Not when from plate to plate the eyeballs roll,
 And the brain dances to the mantling bowl.

Now hear what blessings Temperance can bring:
 (Thus said my friend, and what he said I sing)
 First HEALTH; the stomach cramm'd with every dish,
 A tomb of boil'd and roast, and flesh and fish,
 Where bile and wind, and phlegm and acid jar,
 And all the man is one intestine war.
 Remember oft the scholar's simple fare,
 The temperate sleep, and spirits light as air.
 How pale each worshipful and reverend guest
 Rise from a clergy or a civic feast!
 What life in all that simple body? say,
 What heavenly particle inspires the clay?
 The soul subsides, and wickedly inclines
 To seem but mortal, e'en in sound divines.
 On morning wings how active springs the mind
 That leaves the load of yesterday behind!"

THE STUDY OF DIET has been a matter of grave importance amongst all nations and at every epoch. Hippocrates, the great father of physic, says, "Health depends chiefly on the choice of food," and that the "physicians before his time were to be blamed for not prescribing rules of diet;" and "that he who would skilfully treat the subject of aliment must consider the

nature of man, the nature of aliments, and the constitution of the person who takes them." Herodotus observes of the Egyptians, that, having remarked that the greatest number of diseases proceeded from the abuse of food, they took care every month to consecrate three successive days to pursue and seize health.

The present state of luxurious living, the refinements of cookery, and the delicacy of taste which prevail among our prosperous countrymen, are the most fertile sources of disease that could be found. Hence the calendar of fatal disorders is much increased of late years, and many complaints unknown to our sturdier and less fastidious ancestors are now rife among us. Indeed, when we consider the immense exercise of art employed in refining our food at the sacrifice of nourishment and vigour, we are surprised that death is not more frequent among us, for we manifestly hasten his approach when we set at defiance, in many cases habitually, the laws that should govern our appetites. We reverse the maxim that we must eat to live by living to eat, or wasting the precious moments of our life in pampering our vitiated bodies.

By the term *digestion*, in the more perfect animal, is generally understood that process by which certain substances called nutritive or alimentary are converted into a homogeneous semi-fluid mass, from the cavity containing which white vessels drink up the more elaborated portion, and convey it into other larger ones containing blood, with which it is mixed and carried to the heart. The simplest kind of digestion is that performed by presenting a watery fluid to a moist surface, which converts it into its own nature. Examples of this are seen in the lower orders of animals, the individuals of which consist almost entirely of a closed sack or pouch, on the external surface of which the above change is accomplished. On nearly the same line may be put the spongy extremities of the roots of plants, which absorb or drink up the nutrimental fluid from the soil. In others not quite so simple in their organi-

sation this pouch has an opening, through which the watery fluid enters, and is digested in its cavity. So slight is the difference between the outer and inner surface of this pouch, which constitutes nearly the entire animal, that the one may be made to supply the place of the other, as in the polypus tribe; so that by turning it inside out what was stomach takes the place of the skin, and the skin that was acts the part of stomach. In proportion as the animal structure becomes more complex the subsidiary or preparatory organs are increased in number, to qualify the stomach for acting on the great variety of food, often of a solid and dense texture, which is taken for the purposes of nourishment. The most generally distributed apparatus for the breaking down and grinding the food before its reception into the stomach is the teeth. In an omnivorous animal, such as man, who appropriates to the gratification of his appetite food from all the kingdoms of nature, these instruments are of three kinds. The chief two, however, are the front or incisor teeth, which tear; and the back or molar teeth, which triturate and more minutely divide the alimentary matter in what is called mastication. In many birds, which swallow directly their food without chewing or masticating, there is a mechanical contrivance in the gizzard by which it is broken down and prepared to be operated on by the stomach proper. Those animals, such as the serpent tribe, which swallow their prey without any preliminary process, except breaking the more prominent and resisting parts, such as the bones of the creatures which they have seized, have very slow digestion. They will remain for many hours in a half-torpid state, unable and unwilling to move, until the substance which they swallowed has undergone the requisite change by the digestive action of the inner surface of their stomach. It would seem, then, to be an established principle in the history of digestion, that unless the nutrimental matter be of the very simplest kind, and presented in a fluid state, as in the lowest animals and in vegetables,

it requires to be subjected to some preparatory process before it can be received by the stomach, and undergo in it the changes by which it is to be fitted for nourishing all parts of the living body.

Of the figure and appearance of the stomach little need be said. The most fastidious females can obtain, in the discharge of their household duties as occasional visitors in the kitchen, all the knowledge necessary for understanding what may be said of the organs of digestion. The internal lining of the mouth will represent that of the stomach with tolerable accuracy, since they are anatomically classed under the same head. The membrane common to them both is called mucous, and, except that it wants the hard horny covering of the skin, does not differ very materially from this latter, of which it would seem to be a continuation. This inner membrane is abundantly supplied with blood-vessels, which ramify through it so as to form a network; and nerves, or small whitish filaments, are also distributed through its substance. These latter are the divisions of a cord which comes from the brain down along the neck and through the chest, where it gives off thread-like branches to the heart, lungs, and windpipe. Let us remember that the mouth is the common opening into two passages, the one beginning directly at the root of the tongue, and forming the beginning of the windpipe, and terminating in the lungs; the other farther back, and leading into the stomach. Mouth, windpipe, throat or gullet, lungs and stomach, are then lined by the same kind of membrane. Through this membrane in the windpipe, lungs, and stomach are distributed the numerous branches of the same nerve, twigs of which also go to the heart. Thus we see at once two causes why the lungs, by which breathing is performed, should sympathise so much with the stomach, by which digestion is accomplished. These parts are lined by a membrane of the same nature, on which their peculiar functions are mainly performed, and they are supplied by the same nerve coming from the

brain, which is the centre of so many nerves, and the seat of nervous power.

From the inner surface of the stomach fluids are exhaled, or secreted, somewhat in a similar manner to the discharge of perspirable fluid from the skin. But among the former the chief and characteristic one is what we call gastric juice, by intimate admixture with which the food that has been swallowed loses more speedily its peculiar sensible properties, and is more promptly converted into a homogeneous semi-fluid mass, which serves the purpose designated at the commencement of this subject. It must be very obvious that, for the stomach to form on its inner or digestive surface this juice and other fluids, blood must be conveyed to it in sufficient quantity by appropriate vessels. Again we refer to the skin for illustration. If it be pale, and shrunk, and bloodless, the surface is dry; but let the blood circulate freely through it, giving it warmth and coloration, and it becomes soft and moist, and bedewed with perspiration. Should the amount of blood, however, be too great, as in fever, or from much rubbing, or exposure to the sun or to a fire, there will be no perspiration, no moisture—the skin will be dry and parched. Thus it is with the stomach. If the circulation of the blood be languid the gastric juice will not be formed in sufficient quantity, and if too impetuous an entire stoppage will be the consequence. Hence we can explain in part why in a feeble state of body, when the beats of the heart and the pulse are small and fluttering, the stomach can ill digest much or strong food, and also how it is that in fever, or any diseased acceleration of pulse and beating of the heart, the appetite should be wanting, and, at the same time, there is utter inability in the stomach to manage anything excepting water or the most simple drinks.

Again, the commonest knowledge of what takes place in the human body teaches us that whatever affects a nerve going to any part, whether by bruising or disease, will produce a notable change in its condition.

Let the nerve going from the brain to the globe of the eye be pressed on or altered in its texture, and blindness is the consequence. If the nerves passing to the fingers be tied or cut there is loss of motion, and of the ability to distinguish any longer objects by the sense of touch. The stomach has, in this respect, the same relations with the brain which these and all the other important organs of the body have. If the nerve which, as before stated, goes down on each side of the neck from the lower part of the brain, and passes through the chest on to the stomach, be cut, as has been done in animals without any other injury to them, the power of digestion is gone—the food which they swallow remains in the stomach unchanged. Now, whatever cause impedes in man the due supply of nervous power from the brain to the stomach interferes with digestion. Such a cause may be excessive exertion of the brain in intense thought and study, indulgence in violent passions, injury done to the part by blows, sun-stroke, &c.

Having thus described the process of digestion and the machinery by which nourishment is conveyed to the system, the important questions of the quantity and quality of food we should take claim our consideration.

The subject of *how much food should be taken in a day* has been often discussed, and several treatises have been written to prove that a greater or lesser quantity of nourishment in a given interval is necessary. The ancients held diverse opinions, the majority, we should say, being in favour of "short" meals.

Plato, we are told, upon being asked, when he had returned to Athens from his travels in Sicily, what he had seen that was curious while abroad, replied, "I have beheld a monster in nature—a man who ate two full meals in a day." Stated times for eating, however necessary as a matter of convenience, undoubtedly are attended with many disadvantages. They do some harm by inducing us to partake of food when the

stomach does not actually require it. We too often eat merely because the hour for a meal has arrived. The most judicious rule, if it could be adopted, would be to partake of food only when the appetite craves it, and to cease eating the moment it is satisfied.

To partake of a full meal in the middle of the day, and then to proceed to business immediately or soon afterwards, occasions much mischief. It is well known that all solid food acts as a stimulus to the whole system, producing, in fact, a temporary fever, indicated by chilliness and languor, succeeded by flushes of heat and increased rapidity of the circulation. These symptoms are always in proportion to the amount of food received and its stimulating qualities. We have all experienced how averse the body as well as the mind is to exertion of any kind after dinner; in fact, exercise, whether mental or bodily, immediately after a hearty meal, disturbs and retards digestion, by dividing and weakening the powers of nature in a work which requires the combined action of them all.

The Time for taking Dinner is, however, a matter of secondary importance if rigid temperance presides over it—temperance, as Sir William Temple observes, “which consists in a regular and plain diet, limited in quantity by every man’s experience of his own easy digestion.” It is only when the rules of temperance have been transgressed that we do not rise from the table with feelings comparatively light and cheerful. “When,” says Addison, “I behold a full table set out in all its magnificence I fancy I see gout, colic, fevers, and lethargies lying in ambuscade among the dishes.”

On an average *four or five hours* may be taken as the time required to *digest an ordinary meal of animal food*, whilst about three will be adequate to free the stomach from a supply of vegetable matters. This may afford a good guide in appointing the number and times of meals when the nature of the aliment has been taken into account. Three meals are not too many for any one who is well and uses exercise.

If any proof were wanting that no excess has been committed it is when a person immediately after dinner can go about any necessary business with pleasure, and if after supper his sleep is not disturbed or shortened by what he has eaten or drunk. With regard to animal food it may be said that the flesh of quadrupeds, as it contains a great proportion of oily matter, is a very nutritious aliment, provided only we use no more than the digestive organs can properly assimilate.

We must caution our readers against adopting any material *change in their mode of living* without consulting a medical practitioner. An instance of the ill effects arising from this error is related by Sir John Sinclair. A friend of this gentleman, who had lived freely, resolved to preserve his health by a change of system. He never drank anything at dinner but wine, took no soup, or broth, or gravy, but lived principally on meat and dry toast. He took some glasses of wine also after dinner. He died in the prime of life of an inflammation, which it was thought his mode of life had contributed to produce, for, owing to the scorbutic state of his blood, the only remedy that could have saved him, that of bleeding, was rendered inadmissible.

Dr. Truman, in his excellent "Treatise on Diet," remarks that one great cause of people taking *too little food* arises from their making, or desiring to make, an undue exertion of their intellectual powers. But the fact of their being able to support mental fatigue better when they live very abstemiously than when they take a moderate quantity of food, is the best proof that can be adduced of the unhealthiness of such a plan of living. Whenever one organ of the body is called upon to make undue exertion it is done at the expense of all the other organs. Thus excessive activity of the brain requires all the powers of the system to be concentrated on that apparatus, and consequently all the other parts of the body are deprived of a great deal of their energy. In this way, when the mind is very active, the stomach is less capable of per-

forming its functions, and the powers of nutrition of the body are debilitated. It therefore becomes necessary to give the stomach less to do, and take very little food ; for if the stomach and brain also were called upon, at the same time, to exert themselves a great deal, the demand upon the powers of the system would be too great, neither one nor the other would perform its function properly, and most likely illness would ensue. Persons, then, who are anxious to elicit from themselves splendid intellectual manifestations do quite right for this purpose to live sparingly, and thus require little exertion from the stomach ; but in doing so they do not live in the manner most conducive to health. Sir Isaac Newton, during the time he was occupied with his work on optics, which he considered his master-piece, drank nothing but water, and lived very abstemiously. Napoleon, Byron, &c., have all lived sparingly when their minds were fully occupied. The professed gamester dines on boiled fowl and lemonade to keep his head clear, without which he knows he has no chance of winning by play in the evening. Though this style of living favours great activity of the brain, it is not to be recommended. The plan to preserve the health is to live in such a manner that every part of the body may be allowed its share of activity, and not to concentrate the whole of the vital energies on any one organ in particular. It may be said that many individuals who have exhibited the greatest mental powers have been remarkable for their longevity. This is quite true, but the powers of the body vary exceedingly in different individuals. Where one person is found who can support an unwholesome plan of living there are thousands who fall victims to it. Examine the effects too much mental exertion produces on individuals who do not naturally possess great strength of constitution and power of intellectual fatigue. A vast majority of the men in this country who succeed in getting appointed to the great political offices of the state find the constant call made on their mental powers too much

for their strength, and therefore succumb under the fatigue they are compelled to undergo, unless they retire into private life before their health is too much undermined. They are forced to sacrifice the nutritive powers of the body to obtain sufficient activity of mind, and this, of course, weakens the frame, and very shortly induces disease. The time will come when people will not run so inconsiderately as at present after appointments, before they are satisfied they possess the natural strength necessary to endure the fatigues attached to them. These observations do not, however, apply solely to persons holding political appointments, but to nearly all the middle classes in this country, more than half of whom are brought into a state of debility and disease by making greater mental exertions than their strength will allow, to do which they are compelled to live in a manner unfavourable to nutrition. They suffer too much from anxiety of mind; they frequently breathe a contaminated atmosphere; they lead too sedentary a life, and keep the body for many hours in postures which impede the circulation of the blood and the admission of air into the lungs, and very generally their food is improper both in quantity and quality. The extent to which disease might be diminished would be extraordinary, if these people would only avoid the conditions by which they are surrounded that are most likely to act prejudicially on the health.

The *flesh of animals* is most nourishing when they are much exposed to the open air, and are kept in dry, warm places. On the contrary, the flesh of grown cattle which have been confined in bad air, and which have led an inactive life, is far from being wholesome food.

Persons frequently inquire of their medical attendants whether this or that kind of food is or is not *wholesome*. In answer to this it may be said that of the articles of food in common use none can be deemed absolutely unwholesome, though, from a peculiar state of the nerves of the stomach, certain foods agree better than others;

and, therefore, every person whose stomach has been repeatedly distressed by particular foods ought certainly to avoid them.

It is justly observed by Buchan that "the great art of *preparing food* is to blend the nutritive part of the aliment with a sufficient quantity of some light farinaceous substance, in order to fill up the canal without overcharging it with more nutritious particles than are necessary for the support of the animal. This may be done either by bread or other farinaceous substances, of which there is a great variety." Those who are not engaged in hard labour or exercise do not stand in need of such nutritious aliment as those whose nutritive fluids are partly consumed by muscular exertion and violent perspiration. Those who have sustained frequent loss of blood, from whatever cause, will best restore it by strong and juicy aliment, which, on the contrary, ought to be avoided by the plethoric. Lastly, those whose constitution is weakened and emaciated by free living and dissipation ought not to eat much at a time, but rather repeat their meals more frequently at proper and regular intervals.

"The great object," observes Dr. Truman, "is to comply as much as possible with the intentions of nature. 1. A liberal, but not excessive quantity of food should be taken daily. 2. The food ought to consist of a mixture of animal and vegetable substances, because the digestive organs of the human body are constructed for the digestion of both these kinds of aliment. 3. The food should be varied from day to day.

"For persons of weak stomach animal is more digestible than vegetable food; at the same time a great excess of animal food is unwholesome. People, therefore, with a good digestion, who make hearty meals, ought to eat a considerable quantity of vegetable matter, for if they were to satisfy their hunger with animal food alone they would take more of it than is desirable. Those who have a poor appetite should allow them-

selves more animal food in proportion than vegetable. It is astonishing what a small quantity of animal food is requisite to render vegetable food nutritious. No people in Europe are stronger or more robust than the Irish, the Swiss, and the Gascons, whose diet consists chiefly of potatoes, bread, cheese, and buttermilk. Of the thirty-five millions of people in France more than twenty-five subsist almost entirely on vegetable food; and in Spain, Portugal, and all the south of Europe, the number of persons who live chiefly on vegetables is in about the same proportion." Millions in Asia are sustained by rice alone, with, perhaps, a little vegetable oil for seasoning. In the choice of food, however, much depends upon the constitutional ability of a person to digest particular articles of food. While great prudence is requisite not to overload the stomach with superfluities, it is equally essential that care should be taken of the quality of what we eat. A *bad diet* is one of the most fertile causes in the production of tubercular diseases, of which pulmonary consumption is chief. Scanty, poor, and innutritious food weakens the powers of the body to resist all kinds of morbid influences.

Dr. Strong's statistics of the city of Glasgow establish the fact that the rate of health and mortality was more favourable in those districts where the largest consumption of flesh-meat food took place, as compared with the poorer districts of the city, where the consumption was extremely limited.

The most common cause of morbid distention of the stomach is *eating too fast*; for the appetite only subsiding in proportion as the food combines with and neutralises the gastric fluid previously in the stomach, when we eat too fast, before this combination is completed, so much is taken that the whole gastric fluid which the stomach is capable of supplying during the digestive process is not sufficient to effect the due alteration on it; whereas, when we eat slowly, the appetite abates before the stomach is overcharged, for while digestion is going on, and the gastric fluid is only sup-

plied in proportion as fresh food comes in contact with the coats of the stomach, it combines with the food as it is formed, and never excites the appetite.

Men who are engaged in *studious professions* may be sure that they have exceeded the proper quantity of food to be eaten at one meal if they are unfit for the duties of their profession after an hour's sitting quiet to carry on the digestion.

A few remarks on the *relative digestibility of foods* may be useful to our readers, and guide them in the selection of such nourishment as may be most suitable to their particular temperaments.

If we consider the *general properties of animal foods* we shall find them to be alkalescent in various degrees, and therefore opposite to the acescent tendency of vegetable foods; and as the salt of the animal foods is partly volatile, and resembles that of crude sal ammoniac, so the essential salt of the nutritive vegetables is chiefly sugar. Animal foods have a strong disposition to putrefaction, whilst the tendency thereto in vegetable foods is very slow, being checked by the acid and sugar, which are very opposite to putrefaction. They both have an oily matter, and, what is singular, that of animals is found to contain a considerable quantity of acid, and is the only animal substance that does so. They both contain a gelatinous matter, which in animals is called the coagulable lymph, and in both contributes to form the nutritious particles. Some vegetables also contain a gluey matter called starch, to which there is no principle in animals precisely similar. Animal foods, some very hard and tough parts excepted, seem to dissolve entirely in the stomach, whereas several of the vegetables seem not to be soluble, but only give out their juices by a kind of infusion.

Animal foods are stimulant; that is, they, with a very few exceptions, by their action on the nerves of the stomach, excite a temporary fever, called the fever of digestion; whereas vegetable aliment, whilst in the

stomach, is rather disposed to check than to excite this fever. This fever of digestion, which, though originating in the stomach, is extended to every part of the body, is not, when moderate, injurious to the body whilst in health, but affords a principal ground for indications of regimen in particular temperaments and in certain diseases, and, as will appear hereafter, is the grand test by which we may determine whether stimulating or sedative diet is best adapted to the nature of the habit or disease; for, if morbid stimulus be excessive, sedative foods are indicated, and the contrary.

The same distinction may be made between the stimulating and sedative drinks.

Beef and *mutton*, also *veal*, although they are never absolutely out of season, that is, not fit for the season, are in the greatest perfection in the months of November, December, and January. *Pork* during the summer months is absolutely bad, or out of season, and is only good in winter. The season of the year when the young of quadrupeds have acquired the proper age for being used as food is the period when they are in the greatest degree of perfection. This is naturally in the summer months, when lamb, veal, and fawns are most abundant.

Bacon is highly pernicious to those who are subject to the heartburn. On account of the fat or lard with which it abounds it is not very easily digested. It is a very savoury food, and affords a strong nourishment, suited to persons who lead an active and laborious life. The too frequent and long-continued use of this meat favours corpulency, produces fulness of the stomach and bowels, and occasions disorders of the skin.

The flesh, or those parts of *birds* which we employ as aliments, are nearly of the same qualities as those of quadrupeds. The flesh of birds, however, is less nourishing than that of quadrupeds, though in general more easily digested. Birds living on grain and berries are more wholesome food than those which subsist in swampy and filthy places, and live on worms, insects,

and fish. Most of the sea birds who live upon fish are tender and of easy digestion. They are commonly, however, of a strong odour and rank fishy taste, which to many render them highly disagreeable.

Fish contains large quantities of albuminous and gelatinous matter, which are frequently united with a considerable portion of oil. Though nutritive, it is light and not stimulating, and therefore is often very serviceable to invalids. Some classes of fish, as shell fish, salmon, &c., are more indigestible than meat, and fish in general has a stronger tendency to putrefaction than meat. It has been usual to attribute the cutaneous eruptions which sometimes follow the use of fish to the sympathy existing between the skin and the stomach; the effect, however, is merely temporary, as it departs after the digestion of the meal is finished. *Salt-water fish* are, perhaps, the best of any, as their flesh is more solid, agreeable, and healthy, less exposed to putrescency, and less viscid. They possess these excellent qualities when fresh; when salted they have all the properties, and consequently all the disadvantages, of salt fish. *Herrings* are the most easily digested of all sea fish, and salt herrings in small quantities are nourishing.

With regard to *shell fish*, *oysters* when eaten cold are frequently distressing to weak stomachs; when cooked they are still less digestible, owing to the change produced in their albuminous principles. Still they are nourishing, and contain a considerable quantity of nutritive matter in a small compass.

Lobsters and *crabs* are nutritive, but they are exposed to the same objection on account of indigestibility; and such have been their effects upon certain stomachs as to have raised a suspicion that they contained something of a poisonous nature. Lobsters have occasioned pain in the throat as well as eruptions on the skin, and even extended their morbid influence to the production of pain in the stomach and affection of the joints.

Shrimps are easier of digestion than the above.

Fish dried in the open air and afterwards boiled soft

is easily digested; but all salted as well as smoked fish is injurious to the stomach, and affords but little nutrition. Soft and mucilaginous fish, like eels, are not so easily digested as others, being partly composed of an oily slime, and partly of tough fibres.

A learned Italian, named Massonio, wrote a work of a hundred sheets on the way of dressing *salads*; but we much doubt whether, in a nutritive point of view, they are worth the trouble of such a work. The human stomach is not well adapted for the digestion of raw vegetables; but when not indulged in too copiously they are light and cooling, from their containing so much water and fresh vegetable juices. *Lettuce*, in its several varieties, seems, though so cheap and common, to rank at the head of salad vegetables. This salad contains a narcotic principle, which, when abundant, acts much like opium, producing drowsiness, stupor, and sleep. It has been supposed that this renders lettuce more light and easy of digestion than cress and other salads, though we are more inclined to think that this depends on the mild bitter of the lettuce. *Celery*, when well blanched and nutty, is one of the best salads for weak stomachs, though its peculiar aroma makes it disagree with some constitutions. When eaten in quantity it is apt to be cold on the stomach. *Cress* and *mustard* abound in a sharp, acrid juice, which gives them an agreeable pungency, supposed to be a powerful corrective of scorbutic affections. The oil used with salads often proves a good laxative.

Potatoes are most wholesome when either plainly boiled, steamed, baked in an oven with their skins on, or roasted in an iron pot. By all of these methods the coarse rank juice is either extracted or ameliorated, and the farinaceous part rendered mealy and palatable. By most other methods of dressing their nutritious or digestible properties are more or less injured. Mashed or beaten potatoes, for example, form a tough paste, which contains a great proportion of air, beaten into the mass while it is preparing, and confined by the tenacity

of the potatoes. During digestion this air is disengaged, and occasions an unpleasant flatulence.

Potatoes cooked under a roast, or roasted or fried with butter or dripping, have their farinaceous qualities much injured, and the brown crust usually formed on them, however palatable and savoury it may be, is very indigestible, in consequence of partial charring, and of the empyreumatic oil it contains. This will often derange even the most vigorous stomach, and ought never to be touched by the weak. Soup made with potatoes is not so flatulent nor indigestible as pea-soup. New potatoes, though an agreeable dish, contain very little of the nutritive farina of the mature roots, being chiefly composed of mucilaginous matter, water, and sugar.

Neither potatoes nor any other vegetable dish, with the exception of pea-soup, ought ever to be warmed up after standing over from a preceding meal, as in such cases they will be more or less unwholesome.

Bread, though highly nourishing and wholesome, when it is eaten too freely is apt, in weak constitutions, to produce indigestion, with costiveness, flatulence, and viscosity. New-baked bread, and particularly hot rolls, muffins, and crumpets, contain a portion of indigestible paste, which is rendered still more so by butter, and consequently is less nourishing than bread which is mellowed at least by a day's cooling, or, when that is inconvenient, by toasting. Hot pie-crust and other pastry are still worse, and in weak stomachs will often produce flatulence and severe colic. The robust may indulge in these without much inconvenience, but it will always be at the expense of their strength. The brown crust of bread is more heating and less nourishing than the soft crumb. To those who relish it plain biscuit made without butter is esteemed more digestible and less flatulent than bread. The advantage of coarse bread is, that although it may contain less actual nourishment in a given bulk, it is more easily digested, and never produces costiveness. It is not necessary to eat bread with every kind of diet; it is more useful and

necessary with such articles as contain much nourishment in a small bulk, in order to give the stomach a proper degree of expansion.

Rice is not disposed to ferment in the stomach, and furnishes a wholesome adjunct to other food, though it has been asserted that it is apt to lay too long in the stomach; but this can never be the case when properly dressed. It should be put into a saucepan full of water, loose, and boiled carefully until it bursts, when the water must be instantly poured off.

Rice has been considered by the vulgar as an astringent, and is therefore a popular remedy for diarrhœa. It abounds, indeed, with a bland and mild mucilage, which, shielding the intestines from acrimonious humours, may have given rise to the belief that it may in many cases of looseness have that effect, though not as an astringent.

The too frequent use of *cheese* is condemned by most physicians, who maintain that it is a food fit only for labourers, or those whose organs of digestion are strong. To others it is too heavy; it imparts a thick and acrid chyle to the blood; it hardens in a weak stomach, and accumulates in an indurated earthy lump. When eaten new in any considerable quantity it corrupts the fluids, and if old it becomes putrid. Ale is the best beverage that can be used with it when it is eaten in great quantities at a time. In small quantities after dinner it can do no great harm; but it is absurd to suppose that it assists digestion, its effects, at best, being of a negative kind, that is, by acting as a temporary stimulant on the stomach; and even this is the case only with sound old cheese, which is neither too fat nor too far advanced in the process of putrefaction.

Toasted cheese, however palatable to many, is still more indigestible.

The too frequent use of *butter* relaxes and debilitates the stomach, takes away the appetite, provokes nausea, and heats much, especially if it be old, though, for the most part, when moderately used, it agrees with any

age or constitution, though those that have weak stomachs should use it abstemiously, as well as those of a hot and bilious constitution. Its good effects are nourishing and pectoral; it opens the body, and is of a dissolving and digesting nature.

Eggs, in point of nutriment and digestibility, may be classed next to milk; but their qualities will greatly depend upon the manner in which they have been cooked. When raw they are certainly not so easily digested as when lightly boiled, so as slightly to coagulate their albuminous principle; but if this process be carried too far they are converted into a hard mass, which requires all the powers of the stomach for its chymification; but this is much accelerated by the use of vinegar as a condiment. They are distinguished by the peculiar quality of singularly affecting some stomachs even in the smallest quantity, while they do not produce any uneasy impression on others. It is a fact that eggs, when raw, are laxative, and when cooked are apt to produce costiveness.

It is desirable that the reader should know the hygienic principles of *cookery*, by which he will be guided, in some measure, in the selection of his food. Perhaps there is nothing that bears more strongly upon health than the too much neglected and despised art of adapting our nourishment to our physical requirements.

Broiled meat is very nourishing. For restoring the strength of invalids it is the best mode in which animal food can be dressed, both from its nutritive qualities and from its being easily digested, as the juices are so little altered that they require little preparation to convert them into good chyle and healthy blood. Chops, steaks, and many kinds of fish are, therefore, to be preferred broiled rather than fried when substantial and strengthening nourishment is wanted, even although it should not accord so well with taste and the fancies of appetite. The sorts of meat most suitable for broiling are such as are too dry and deficient in albumen and gelatine for roasting, among which may

be mentioned the flesh of old animals; the rump of beef, which abounds in fibre; and, above all, game and most sorts of fish, such as trout, char, mackerel, and herrings, which would be rendered too soft by boiling, and be quite shrivelled by roasting or baking.

In roasting and baking it requires some time to form an incrustation on the surface of meat; but in broiling the quick application of a brisk heat very speedily frees the outside fibres from their watery juices, and a firm and crisp coating of fibre and fat is soon produced. This crust presents a strong barrier against the escape of juices from the interior, which are more suddenly expanded than in the slower process of roasting, and, of course, must produce a more violent separation of the small fibres from their several bundles.

Stews are only of easy digestion when they are very plain, in which case, though they are scarcely so highly nourishing as meat that is broiled or roasted, yet may be made a wholesome and nutritive variety. The good qualities of stews, however, are too often injured by high seasoning, and the addition of stimulants and indigestible compounds much more calculated to disorder the stomach than to afford nourishment.

The sorts of meat best adapted for stewing are such as are too tough or too dry for roasting, such as beef or mutton that is too coarse flavoured or old to be dressed by other processes. Stewing will often render meat of this kind good, palatable, and savoury, when it could not otherwise be at all rendered fit for the table. On the other hand, meat which abounds in albumen and gelatine, such as veal and lamb, forms a stew which is, perhaps, the best way of rendering the flesh of young animals easily digestible by weak stomachs.

In stewing, the quantity of fluid being necessarily small, will soon be driven off in vapour if the vessel is not kept close, or if the heat be too violent; and hence it becomes of importance to regulate the fire so that a simmering, but scarcely a boiling, heat may be kept up, for on this the richness and strength of the stew prin-

cipally depend. It is this circumstance which seems to give the French such a vast superiority over the English in this process; for, while we are impatient to hurry on the operation by means of our great coal fires, they wait unweariedly from hour to hour over their charcoal embers, and watch with care the concoction of all the rich juices of their savoury stews.

When vegetables are stewed the water and the heat render the mucilage and starch soluble, which separate from the woody fibre, and leave it relaxed, soft, and tender, while a portion of sugar is for the most part either disengaged or actually formed.

By the process of *roasting* meats are more nutritive than when boiled. It has been computed that one pound of roasted contains as much nourishment as two of boiled meat. In roasting the fibrin is corrugated, the albumen coagulated, the fat liquefied, and the water evaporated. As the operation proceeds the surface becomes first brown and then scorched, and the tendinous parts are rendered softer and gluey. Animal matter loses more by roasting than by boiling. By this latter process mutton loses one-fifth, and beef one-fourth, but by roasting these meats lose about one-third of their weight. In roasting the loss arises from the melting out of the fat and the evaporation of the water; but the nutritious matter remains condensed in the cooked solid, whereas in boiling the gelatine is partly abstracted.

Boiling dissolves more of the nutritive juices of meat than any other process of cooking, and when the broth is not used, it, of course, occasions a considerable waste. When the gravy or broth, however, is brought to the table, boiling is by far the most economical mode of dressing; for the water, independently of the nourishment afforded by itself, serves to dissolve and comminute the nutritive parts of the meat, and renders them, if not more digestible, at least more diffused.

The sort of meat best suited for boiling is nearly the same as that we have mentioned for stewing, such as

the more tough and tendinous parts, and what contains most gelatine and albumen; for example, the heads, the feet, and the joints of young animals, and all salted meat, the fibres of which have been hardened by the salt.

The effect of boiling upon vegetables is to dissolve in the water some of their chemical elements, such as their colouring matter, their mucilage, and their sugar, and also to render some of their less soluble parts more soft and pulpy, such as their gluten and their woody fibre. The boiling of vegetable substances also frequently forms or develops a quantity of sugar, which adds to the nutritive quality of the food.

It is fortunate that *frying* does not seem a favourite process with most cooks; but it is unprofitable in a salutary and economical point of view, except in the case of fish. When meat is thrown into boiling fat it soon parts with all the albumen, gelatine, fat, and osmazome which are near its surface, as these are quickly separated by the heat and removed by the fat, which supplies their place by entering between the fibres and filling up every vacancy. As the process goes on, the interior part of the steak or chop suffers the same transfer of substance, and were it not that the melted fat preserves the fibres supple and juicy, the meat would not be fit for the table, for the fat has, from chemical affinity, a very great influence in dislodging the animal juices; and hence it is that fried meat acquires a leathery appearance, and loses much more of its bulk by shrinking than if dressed in any other manner. Hence, also, fried meat is less tender and savoury; and, as it is not served up in the fat it is fried in, the best juices of it are lost to the eater.

The nutritive qualities of meat, it must be evident, are partly abstracted by the process of frying, and these may, indeed, be readily discovered after the melted matter in the pan is left to settle in the form of a rich, brown, savoury jelly, which separates spontaneously from the rest, and is composed of albumen, gelatine, osmazome, and minute portions of red fibre.

Vegetables, as well as animal substances, are sometimes fried, though it is a process not to be recommended, for it seldom makes them more palatable, and always injures their digestible and nutritive qualities. Vegetables when fried part with all their juices, but the place of these is not, as in the case of meat, supplied by the melted fat; and their most nutritive substance, starch, is also rendered insoluble in water, and in a great measure indigestible. Potatoes when fried become waxy in texture and semi-transparent in appearance. Such dishes should always be avoided by invalids and those whose digestion is feeble. They will often produce derangement even in the most healthy and vigorous. We have said the same of potatoes done under a roast.

Fruit, according to some writers, is not so easy of digestion as many seem to suppose. The mistake has arisen from the fact that an over quantity of it does not seem to be very mischievous. This, however, is not owing to its digestibility, but to its want of stimulation. It is generally supposed that fruit digests easily, because children are very fond of it, and do not often seem to suffer from the use of it. They do, however, experience more ill effects from it than has usually been imagined, and this lays the foundation of many complaints among them. One thing, however, in regard to children should be remembered—that if their digestive organs are not quite so strong as those of adults they are at least much more active, which makes up in part for their want of strength. Were it not so they would suffer much more from their excessive use of fruit than they now do.

We have said that fruits are not very easy of digestion. They are, however, easier in proportion to their perfection. This might have been urged as a reason why they should be of good quality, seasonable, healthy, &c. But with everything else, and all circumstances concurring, they can be digested with tolerable ease.

One favourable circumstance is full bodily vigour. On this account fruits should be generally used in the

early part of the day, and seldom late in the evening. The morning is, on the whole, best, and next to that, perhaps, the middle of the day. The worst hour is the hour just before going to bed.

There cannot be a more wholesome breakfast in hot weather for persons in good health than a breakfast made up entirely of ripe fruits, as strawberries, raspberries, cherries, whortleberries, &c. If mixtures are adopted, milk, or bread, or rice is probably the best adjunct.

Fruit in general possesses strongly resolvent powers, and it is more beneficial as it comes to maturity at a time when the body is relaxed by the heat of summer, and when the blood has a strong tendency to inflammation. Persons of a thick and languid blood cannot eat anything more conducive to health than fruit, as it possesses the power of attenuating and putting such blood in motion; but those of a watery and phlegmatic constitution ought carefully to avoid it.

Fruit preserved with sugar is antiseptic and nourishing, but at the same time flatulent, and if preserved with sugar and spices it is heating and drying. It is most wholesome when eaten on an empty stomach, which can exert all its powers to expel the air disengaged from it, and to remove it before it begins to ferment. Boiling as well as drying corrects the flatulent tendency of fresh fruit, so that thus prepared it agrees with most persons. By either of these methods it is deprived of its superfluous humidity, as well as of the fixed air, whence it becomes more nourishing, but less cooling than in the fresh state.

The sweet and mildly sour *apple*, the milder and more tender sort of *pear*, some kinds of *peaches*, *strawberries*, *raspberries*, *blackberries*, may be said, as a general rule, to be among the better class of fruits; and next to these are the *winter apple*, the *cherry*, the *gooseberry*, the *currant*, the *mulberry*, the *best grapes*, and some sorts of *plums*.

As a general rule those sorts or kinds of fruits should be chosen which are either moderately sweet or gently

acid, and those individual fruits of each general sort which are the ripest and most perfect.

The following list of fruits in season may be useful to our readers :—

January.—Almonds, apples, grapes, medlars, nuts, pears, and services.

February.—Apples, grapes, and pears.

March.—Apples, pears, and strawberries, forced.

April.—Apples, cherries (forced), pears, and apricots for tarts.

May.—Apples, apricots (green), cherries, currants for tarts, gooseberries, melons, pears, and strawberries.

June.—Apples, apricots, cherries, currants, gooseberries, grapes, melons, nectarines, peaches, pears, pine-apples, and strawberries.

July.—Apples, apricots, cherries, gooseberries, melons, nectarines, peaches, pears, pine-apples, plums, raspberries, and strawberries.

August.—Apples, cherries, currants, figs, filberts, gooseberries, grapes, melons, mulberries, nectarines, peaches, pears, pine-apples, plums, and strawberries.

September.—Currants, filberts, grapes, melons, pears, peaches, hazel nuts, lazeroles, medlars, morello cherries, plums, quinces, pine-apples, and walnuts.

October.—Apples, bullaces (black and white), figs, filberts, grapes, hazel nuts, medlars, peaches, pears, quinces, services, and walnuts.

November.—Apples, bullaces, chestnuts, grapes, hazel nuts, medlars, pears, services, and walnuts.

December.—Apples, chestnuts, grapes, hazel nuts, medlars, pears, services, and walnuts.

CHAPTER IV.

DRINKS.

" Though I look old, yet I am strong and lusty,
For in my youth I never did apply
Hot and rebellious liquors in my blood ;
Nor did I, with unbashful forehead, woo
The means of weakness and debility ;
Therefore my age is as a lusty winter,
Frosty, but kindly."

SHAKESPEARE.

ERRORS IN REGARD TO DRINK constitute one of the causes to which, in a great measure, is to be attributed the increase of disease as society advances in refinement and luxury. It has been computed that, since the introduction of ardent spirits into common use, more victims have fallen by it alone than by the sword and pestilence within the same period.

The picture of drunkenness is, alas, so common in our streets that none are unacquainted with it. This dreadful vice strikes at the root of our social fabric, and produces the greater portion of the vast amount of crime that is committed in our country. The insidious manner in which a person prone to this fearful indulgence is led on to the final catastrophe of ruin and death, urges us to warn our readers from the slightest tendency to exceed the principles of moderation in drink. A writer half a century ago gave a striking description of the effects of excess in spirituous drinks upon the frame. " By habits of drunkenness it will be

found," he observes, "that an amazing number of lingering yet fatal diseases are produced in consequence of them, and that many thousands drag out a miserable existence, unable either to continue their former practices, or to recover from the effects produced on the withered and emaciated fabric. In the mornings the mouth becomes dry and disagreeable, the sleep ceases to be refreshing, and the appetite for food fails. The hands shake, and the wretched sufferer flies again to the bottle for temporary relief; the face is bloated; the breath is horribly disgusting, and a stench issues from the whole of the body; the features are enlarged and inexpressive; the eyes assume a glazed appearance, then become fixed and stupid, and at last watery and tender; their expression is extremely unpleasant, and at length they seem considerably protruded from their sockets; the whole frame either becomes flabby and soft, or emaciated and haggard in appearance; the extremities are shrunk and meagre, the feet unable to support the limbs, and the knees unable to support the body."

During this period the internal changes are not less striking than the external appearances. The liver principally becomes affected, and a sensation of disagreeable heat and oppression is felt about the region of the stomach; while the bowels in particular, and the system in general, become extremely disordered. The disease of the liver still increases; heavy gnawing pains are felt in it, distressing nausea, a perpetual inclination to vomit, or vomiting itself, becomes frequent; violent spasms often seize the stomach and contiguous viscera, and either obstinate torpidity of the bowels or profuse and debilitating diarrhœa is the only alternative of the patient.

Neither is the state of mind less changed. Its sensibility and all its delicate emotions become gradually blunted. Those qualities which at any time may have rendered persons valuable in private or in public life are neglected and disgraced. Their society ceases

to be coveted, they become torpid, and mere outcasts upon the earth; their mind becomes equally indifferent to everything past or future; hope is extinguished within their breasts, and even the prolongation of existence becomes a matter of indifference to them. Thus the wretched and almost unpitied sufferer lingers out a few tedious years, equally insensible to every kind of enjoyment but the prospect of again reducing himself to a state of insensibility by intoxication. Delirium at length ensues, and reaches sometimes its wildest state, though, even without this dreadful addition, the victims of these disgusting habits become an intolerable burden to their nearest relations, who feel it impossible to pity them to the extent of their misery, because the conviction can never be removed that they themselves have been the voluntary cause of their own sufferings.

Dropsy, in one or other form, at length supervenes, and the increased bulk occasioned by it, added to the horrid and disgusting appearance of the person in every other respect, exhibits a most shocking spectacle.

While slight convulsions now announce the termination of the scene, the dropsy increases—the skin of the swollen limbs becomes thin and tender; at last it bursts, mortification ensues, and horrible convulsions, during which existence is still for a few hours painfully prolonged, carry off the patient, who has thus been tormented by a death as slow as his disgusting habits have been gradual.

One of the most destructive examples of the aggravation of mortality from drinking *ardent spirits* is the liability of persons thus habituated, and who meet with fractures and other severe hurts, to the disease called *delirium tremens*. Great numbers of accidents annually occur among the labouring classes, of which those who are temperate in their habits regularly recover; while their intemperate comrades, with equal original injury, sink under a complication of the latter with that affection which arises from their use of spirituous liquors.

For the truth of this remark we have only to refer to hospital reports. It will there be found that the intemperate perish of diversified injuries in a ratio altogether disproportionate to the mortality of the other sufferers—a fact which ought to have peculiar terrors for the intemperate among the poor, as the labourer finds himself unexpectedly deprived of the safeguard of that strong constitution upon which he depended for his power of supporting hardships, and for his recovery from those accidents to which, from his way of life, he is peculiarly exposed.

In a very great number of cases of *insanity*, both amongst men and women, the insanity is *caused entirely by spirit drinking*. This may in some measure be attributed to the young not being taught to consider the practice disgraceful, and to their being tempted, by the gorgeous unconcealed splendour of the present gin mansions, to begin a habit which they never would have commenced had they been obliged to steal, fearful of being observed, into the obscurity of the former dram-shop. The rapid destruction of the nervous system by this ensnaring vice is here seen in the most painful features. The haggard look and palsied limb give warning of the fatuity and epilepsy which are very shortly to terminate existence.

In those cases which are sent to the asylum before these fatal effects have proceeded too far, the restraint from the practice, the regularity of the hours and diet, combined with amusing labour in the open air, produce the most beneficial effects, and in a few months the body and mind are restored to their natural tone. In too many instances, however, on leaving the asylum the same vice is again indulged in, and the same melancholy consequences are the result, until by constant repetition, such fatal disease is formed in the brain, that death is the only relief from incurable hopeless idiocy.

"Some experience of the poor, and inquiries expressly directed to this point," observes Dr. Guy, "have convinced me that they are led into this baneful habit, not

so much by a love of intemperance and of its treacherous pleasures, as by the opinion that *spirituous liquors are necessary to the support of their strength*. Those who use strong exertion in their employments drink, because they think that without spirituous liquors they could not do their work; but those who lead sedentary employments are often compelled to drink, that they may neutralise the debilitating effect of an atmosphere which in extreme cases may be, with little exaggeration, described as combining the temperature of an oven with the foul air of a sewer. If they had pure air they would soon cease to regard spirituous liquors as necessary to their existence, and the habits which grew out of a supposed necessity might be fairly left to the correcting influence of experience and example."*

* The following statement of the number of persons who went into fourteen of the leading gin shops in London during one week in the year 1833 is contained in the evidence given before the Select Committee of the House of Commons on drunkenness in 1834. It was procured by persons set to watch and count the persons as they entered the shops :—

	Men.	Women.	Children.	Total.
On Mondays	23,758	17,552	3,052	44,362
„ middle of the week ..	20,475	15,455	2,762	38,692
„ Saturdays	27,005	21,599	3,350	51,954
„ Sundays	17,795	13,264	2,330	33,389
Total for four days ...	89,033	67,870	11,494	168,397
„ three days, by calculation deduct- ing one-fifth	53,420	40,723	6,897	101,041
Total for one week ...	142,453	108,593	18,391	269,438
Average of each house per day ..	1,453	1,108	187	2,749
„ „ per week ..	10,174	7,756	1,313	19,245

It appears from the above, that if the attendance during the middle of the week be taken as a standard of comparison, the increase on Mondays is equal to 14½ per cent., and on Saturdays

The introduction of the lighter kinds of *wine* into more general use has been strongly recommended as one of the means for suppressing entirely the consumption of ardent spirits. Great caution, however, is necessary to be observed, lest by these means mankind be induced merely to substitute one poison for another. That the moderate use of pure wine is unattended by nearly all those deleterious effects consequent upon the employment of ardent spirits to any amount may be acknowledged. Nevertheless, there is an important consideration in relation to this subject which must not be overlooked. We allude to the fact that for every gallon of pure wine which is sold there is, perhaps, fifty times the quantity of that which is adulterated, and, in various ways, sophisticated—the whole, without exception, the source of a thousand disorders, and in many instances an active poison imperfectly disguised. The encouragement for this adulteration will, of course, be increased in proportion to the quantity of wine consumed, until, at least, the vine shall be more generally cultivated in our own country, and the motive for deception be, in consequence, in a great measure removed.

A few hints on the *composition of wine* may be useful. It is a compound liquid, whose principal ingredients are water, alcohol, or pure spirit, and sugar. To these may be added extractive colouring matter, which gives to each kind, and particularly the red, its peculiar colour; tannin, or the principle of astringency; tartar, which is a chemical salt; and an aromatic oil, upon which the flavour chiefly depends.

The *quality* of each wine depends upon a mixture of

amounts to 34½ per cent., while on Sundays the decrease is 16 per cent. The largest attendance observed during a single day at one of the shops in question occurred on a Monday, when the numbers amounted to 6021. The smallest was 1146.

It is stated that by far the largest proportion of those who went in took a glass or more of spirits; but of the children, whose ages varied from six to sixteen years, about one-half entered with bottles to fetch spirits for their parents or friends.

all these ingredients, the absence of one or more of them, and the proportion in which its component parts are blended together.

The juice of the grape, simply expressed, does not exhilarate or intoxicate; it must first undergo fermentation, in which process one of its principal component parts, sugar, is decomposed, and alcohol is formed, which is the basis of all spirituous liquors: it now becomes wine. The carbonic acid, or fixed air, which escapes, is also derived from the sugar. When any considerable portion of this air is retained in combination with the wine, the latter possesses that brisk, sparkling quality which distinguishes bottled cider and the wines of Champagne. In some wines all the sugar which exists is not decomposed in the fermentation, and hence we have sweet wines. Others possess a large proportion of tannin and tartar, in consequence of which they become astringent, such as the red, and particularly port wines.

New wines are neither so palatable nor so wholesome as when they have been kept until their ingredients are properly blended, and combined in such a manner as to give some of them that mellow and unctuous quality so highly praised by the amateur wine-drinker. If kept too long in the cask they become impoverished, and imbibe from the wood qualities foreign to them. If in the bottle, they deposit too great a portion of their constituent parts, and a new chemical action occurs; and, in general, they undergo a change much to the disadvantage of good wines.

It is for the purpose of *counterfeiting* these distinguishing qualities in wines that manufacturers have recourse to the addition of ingredients, always injurious to the health of those by whom they are drunk—frequently in the highest degree deleterious. An account of these adulterations will be found in any of the encyclopædias or chemical treatises.

Sulphur is put into wines to cause them to keep, but if they are surcharged with it the effects are extremely pernicious: its presence may be detected by its turning

silver black. Quicklime is frequently used to give Burgundy and claret a ruby colour: it is productive of those complaints peculiar to the gouty and dyspeptic. The spirituous wines contain, in general, a quantity of inferior brandy or other distilled liquor.

Thus we find that the very wines which, from their cheapness, will be the most apt to come into general use, are little better than poisons.

It is also to be observed that the purest and most wholesome kinds are highly prejudicial to the health when habitually drunk in *large* quantities, or to the extent of producing intoxication. Great wine-drinkers, as well as the immoderate consumers of ardent spirits, are the subjects of disease, and very generally terminate their lives prematurely. According to Dr. Paris the dry and light wines, as Hock, Rhenish, Mayne, Moselle, Necker, and Elsass, and the highly flavoured wines, Burgundy, Claret, Hermitage, &c., are most suitable in many cases. The former of these wines combine the effect of an acid with that of the spirit. They do not contain any uncombined alcohol, and on that account are greatly to be preferred. *Genuine claret* must be considered as the most beneficial of all our vinous liquors; it is well fermented, and, on account of the small proportion of spirit, as well as of extractive, which it contains, it is more salubrious than port. It is a fact not easily explained, that the stomach is frequently outraged by a wine to which it has not been accustomed, and it is equally true that a mixture of different wines is a common source of indigestion. The custom of mixing wine with water has its advantages as well as its evils. By dilution it frequently proves too little stimulant to the stomach, and runs into a state of acescency. Much, however, depends upon the quality of the wine taken: the lighter wines cannot require dilution, while port is certainly rendered less injurious by the admixture.

Home-made or domestic wines may be generally considered as injurious to delicate stomachs; they are

apt to ferment, and produce indigestion. Cider and perry are grateful drinks in hot weather, but, as they do not contain a sufficient quantity of spirit to prevent their passing into the acetous fermentation in the stomach, they should be avoided by those who have any predisposition to indigestion.

"In the better circles of society," observes Mr. Cyrus Redding, "and where expense is of no moment, the purer wines are generally taken; but great care is necessary, in going into company, as to the quality of the wine a guest may find before him. If he have any apprehension it is better he should select one kind which is sound, and take no other. Madeira, Sherry, or Bucellas of tolerable quality, is safer than any red wine of dubious quality and spirituous strength. A light French white wine is very far better. The acid of a wine with little spirit will speedily give way to a spoonful of magnesia, should it by accident happen to disagree from ill quality; but if it be a strong brandied wine the effect of only half a dozen glasses is quite enough to make them long remembered. At public dinners, with six-sevenths of tavern wine, great hazards are run. In a large company, where the individual is thrown off his guard by speeches, toasts, and claptraps of all kinds, it is far better to order, if it agree with the individual, a decanter of weak cold punch or very weak brandy and water, and pass the wine-bottle as it comes round. Many would this way escape a fearful head ache. A decanter of sherry and water (half and half) if it can be obtained, or even lemonade, may be substituted. It is at public dinners that bad wine is got off, just as bad champagne and genuine gooseberry pass unnoticed at balls and places of public resort, where dancing and exercise, or the heat of the rooms, may make any liquid grateful to the palate."

Our own view respecting vinous liquors is, that there are only a few incidental cases, including, for instance age and feebleness, where wine can operate to advantage. We find the same opinion expressed by Dr

Thomson in his remarks on alcoholic drinks. He says, "It may be reasonably asked, of what benefit is even the temperate use of ardent spirit to a healthful individual, who requires no additional excitement either of his mental or his corporeal energies? To this question no satisfactory reply can be offered; and, notwithstanding the universal propensity of the human species for intoxication, and the ingenuity exercised in obtaining means to effect it, yet ardent spirit can be justly regarded in no other point of view than as a medicine or a poison."

The ill effects of *beer* in many cases arise not from the main ingredients, malt and hops, but from the acid which is present in malt liquor, and constitutes the tart flavour called hardness. This acid is not an addition of fraud or adulteration, but arises during the fermenting process. When taken into the stomach it has the effect of leaven; a small portion leavens the whole mass of food and drink in the stomach, makes it sour, and consequently produces heartburn, bile, nausea, headache, &c., according to the circumstances of the quantity swallowed, and the strength of the constitution to bear it. It is this acid which is the chief producer of gout, rheumatism, and other diseases. To avoid these, malt liquors should be drunk as mild as possible, as the deleterious acid would consequently be in small quantity. A quart of London porter is said to contain about as much acid as a couple of lemons, and a quart of fresh table beer as much acid as one lemon, or a little more.

The celebrated Dr. Franklin observes, that the bodily strength furnished by beer can only be in proportion to the solid part of the barley dissolved in the water of which the beer was composed; and that as there is a larger proportion of flour in a penny loaf than in a pint of beer, consequently that more strength is derived from a penny loaf and a pint of water than from a pint of beer. As a proof of the justice of this doctrine Dr. Franklin states that when he was a printer in London,

though he drank nothing but water, he was the strongest of fifty workmen, all of whom drank beer, and one of them to the extent of six pints a day.

It has been justly observed that a very considerable proportion of the middling and higher classes of life, as well as of the lower, commit serious depredations on their constitutions when they believe themselves to be sober citizens, and really abhor debauch. This is by drinking ale, or other malt liquors, to a degree far short of intoxication indeed, yet, from long habit, producing a train of effects that embitter life.

Corpulency, obesity, hebetude, vertigo, apoplexy, and other affections of the head are known to result from the abundant use of malt liquors; but it is not generally suspected that they have a peculiar tendency, independently of the adulterations which too often enter into their compositions, to produce effusion of water in the cavities of the chest, and to predispose to those numerous organic affections of the heart itself which are, unhappily, so general. Malt liquors assuredly give a greater degree of fulness to the blood-vessels than any other species of drink, while, in common with the latter, they paralyse the absorbent system, and render torpid many of the salutary secretions. The heart is thus called upon for unusual exertions, which eventually injure its function or structure; while the equilibrium between exhalation and absorption on the serous membrane of the chest is deranged, and dropsical affections ensue.

The immense sum expended in the consumption of beer, porter, gin, and compounds in London alone—equal to double the revenue of some of the kingdoms and states of Europe—independently of other evil consequences in producing indigence and promoting crime, must, in a certain degree, debilitate manhood, in lessening the powers of animal life, and in shortening its duration long before the period arrives when an adult ceases to contribute by his labours to the resources of the state.

"It is a mistaken notion," remarks Mr. Colquhoun, "that a large quantity of malt liquor is necessary to support labourers of any description. After a certain *moderate* quantity is drunk it enervates the body and stupefies the senses. A coal-heaver would receive more real nourishment, and perform his labour with more ease and a greater portion of athletic strength, if he were to restrict himself to only one-third of the quantity of beer which he ordinarily consumes; he would also enjoy better health, and be fitter for his labour the following day. On a supposition that the excesses in which, perhaps, 200,000 of the labouring classes in the metropolis *indulge* shorten the natural period of their existence only five years each, on an average the labour of one million of years is lost in the lives of this class of men, after the expense is incurred of rearing them to maturity, which, during a period of thirty-six years of adult labour, at £25 a year, establishes a deficiency to the community of *twenty-five millions sterling*, independently of the numerous other train of evils which arise to a nation from idle, dissolute, and immoral habits, by which the rising generation is contaminated, and great inconvenience imposed on the innocent and peaceful subjects from the increase of crimes which are generated through this medium."

Health can as little be supported without *pure water* as without pure air. When either of these fluids is deteriorated by admixture with foreign matters, disease will be a common, if not constant resident. The ancients were well aware of this fact when they went to such expense in procuring good water from great distances. At this day Rome, though fallen from her high estate, is supplied with copious streams of water, conveyed for many miles by means of aqueducts built in her days of early splendour and dominion.

The common division into *soft* and *hard* is generally recognised in speaking of water when used for domestic purposes and the arts. The first, or *soft*, is rain, river, and snow water; the second, or *hard*, is that generally

obtained from springs and wells. Good water ought to be perfectly inodorous, transparent, and give no other taste than that of softness. It should readily mix with soap so as to form a homogeneous, opaline fluid, which will not be decomposed for several hours.

Almost all spring waters possess the property termed *hardness* in a greater or less degree. This depends chiefly on their holding in solution supercarbonate of lime (chalk), or sulphate of lime (plaster of Paris), or both. A very small proportion of one of these salts is sufficient to give the water the character of hardness.

Almost all medical writers of eminence concur in giving preference, in most cases, to water as the most healthful beverage. On this subject Dr. Cheyne observes, "It has been an agreeable appearance to me to observe with what freshness and vigour those who, though eating freely of flesh meat, yet drank nothing but this aliment, have lived in health, indolence, and cheerfulness to a great age. Water alone is sufficient and effectual for all the purposes of human wants in drink. Strong drinks were never designed for common use; they were formerly kept here in England as other medicinals are in apothecaries' shops, and prescribed by physicians as they do diascordium and Venice treacle, to refresh the weary, to strengthen the weak, to give courage to the faint-hearted, and to raise the low spirited."

In praise of the same healthful element, Dr. Johnson observes, "The water-drinker glides tranquilly through life without much exhilaration or depression, and escapes many diseases to which he would otherwise be subject. The wine-drinker experiences short but vivid periods of rapture, and long intervals of gloom; he is also more subject to disease. The balance of enjoyment, therefore, turns decidedly in favour of the water-drinker, leaving out his temporal *prosperity* and future anticipations; and the nearer we keep to his régime the happier we shall be."

"If," observes Hoffman, "there is in nature a

remedy which deserves the name of *universal* it is, in my opinion, pure water. The use of it is so general, and so necessary to us all, that we can neither live nor preserve our bodies sound and healthy without it."

Water is the natural drink of plants and animals of every description, and is the only article which can fulfil those ends for which the introduction of a liquid into the human system is demanded. Its use is equally adapted to every age and temperament, to every season and climate. It facilitates digestion, and by its fluidity and mildness promotes that free and equable circulation of the blood and humours through all the vessels of the body, upon which the due performance of every animal function depends.

Horace Walpole, Earl of Orford, seldom tasted any liquid but iced water. At dinner time a pail of ice was placed under the table, in which stood a decanter of water. This his guests would occasionally share, and found it a delicious refreshment, diffusing the genial warmth afterwards imparted by alcoholic liquors, without any of their subsequent heating and pernicious effects.

Horace Walpole not only regarded his iced water as a preservative from cold, but he would sometimes observe that he thought his stomach and bowels would last longer than his bones, such conscious vigour and strength in those parts did he feel from the use of that beverage.

The signs of bad water may be thus enumerated.

1. In a situation otherwise salubrious, where the people are pale and unhealthy, and in particular where they are troubled with swellings in the throat, there is reason to suspect the quality of the water.
2. Water which in a boiling state will not soften peas, beans, and other pulse, is unfit for use.
3. In general, water which issues from peat-moss is unwholesome.
4. Where the water has a petrifying quality, or is much impregnated with calcareous earth, it is bad.
5. When water is combined with saline or sulphureous substances it is not calculated for culinary purposes. Indeed, mineral

waters, though useful as medicine, are not so proper as common diluents to be taken for ordinary drink.

No greater imprudence can be committed than to partake of *iced fluids*, especially when the body is fatigued, overheated, or in a state of profuse perspiration. Though always injurious, yet under such circumstances the danger from their use is augmented in a tenfold degree. Violent cramps and inflammation of the stomach, or even sudden death, have been known to result from their incautious introduction into the stomach. Many have drunk iced water for a length of time with impunity, yet it is not less true that to all its use is attended with the utmost peril. Drinking frequently large draughts of water or other fluid is another imprudent practice, which, while it less effectually quenches the thirst than small portions frequently repeated, unduly distends the stomach, and in this manner impairs its tone.

Pure Soda Water is wholesome when taken at the proper period. Dr. Paris observes truly that the drinking this inviting beverage during, or immediately after, dinner has been a pregnant source of indigestion. By inflating the stomach at such a period we inevitably counteract those muscular contractions of its coats which are essential to chymification. The quantity of soda thus introduced scarcely deserves notice; with the exception of the carbonic acid gas it may be regarded as water, more mischievous only in consequence of the exhilarating quality, inducing us to take it at a period at which we should not require the more simple fluid.

In the ordinary so-called soda water sold at fountains there is scarcely any soda. The liquid is common water mechanically super-saturated with fixed air, which, on being disengaged and rarefied in the stomach, may so over distend that organ as to interrupt digestion. When acid prevails in the stomach, which is generally the case the day after too free an indulgence in wine, pure soda water, taken two or three hours before dinner, or an hour before breakfast, not only neutralises

the acid, but the fixed air, which is disengaged, allays the irritation, and even, by distending the organ, invigorates the muscular coats and nerves. As the quantity of soda in the real soda water is much too small to neutralise the acid, it is a good practice to add fifteen or twenty grains of the carbonate of soda finely powdered to each bottle, which may be done by pouring the contents of a bottle on it in a large glass. As the carbonic acid is a powerful solvent of metallic substances, soda water should never be manufactured in copper vessels. The sodaic powders sold as a substitute for soda water produce an effervescence when dissolved, but the solution is very different from soda water. A quantity of alkaline tartrate may in this way be taken into the system, which tends to increase, rather than to remove obstructions, and in many stomachs must be highly injurious.

Among the other liquids in general use we may briefly mention the following, commencing with *Tea* :—

Two kinds of tea are imported into this country—black and green. Both contain astringent and narcotic principles, but in very different proportions, the latter producing by far the most powerful influence upon the nervous system. As the primary operation of every narcotic is stimulant, tea is found to exhilarate and refresh us, although there are individuals so morbidly sensible to the action of certain bodies of this class, that feelings of depression, accompanied with various nervous sensations and an unnatural vigilance, follow the potation of a single cup of strong tea ; while others experience, from the same cause, symptoms indicative of derangement of the digestive organs ; but these are exceptions, from which no general rule ought to be deduced. The salubrity of the infusion to the general mass of the community has been established by sufficient testimony to outweigh any argument founded on individual cases. It must, however, be admitted that if this beverage be taken too soon after dinner, the digestion of the meal may be disturbed by the disten-

tion it will occasion, as well as by its influence as a diluent; the narcotic and astringent principles may also operate in arresting chymification. When drunk four hours after the principal meal it will assist the ulterior stages of digestion, and promote the insensible perspiration, while it will afford to the stomach a grateful stimulus after its labours.

In enumerating the advantages of tea we should not forget that it has introduced and cherished a spirit of sobriety, and it must have been remarked that many of those persons who dislike tea frequently supply its place by spirit and water. The addition of milk certainly diminishes the astringency of tea; that of sugar may please the palate, but cannot modify the virtues of the infusion.

When *Coffee* is intended as a promoter of digestion it should be carefully made by infusion; that is, by putting it into boiling water, and suffering it to stand and gently simmer: decoction dissipates its fine aromatic properties.

Coffee drunk after dinner promotes digestion, and agues, diarrhoeas, and giddiness are frequently removed by it. If drunk too strong it affects the nerves, and by its penetrating qualities often occasions tremors of the hands and sleeplessness; but in some phlegmatic and indolent individuals it is apt to excite sleep. If it be used merely as a diluent for relaxing the fibres it ought to be made strong; that is, in the proportion of an ounce to a pint of water, which should be allowed to boil up, and left to simmer very gently, with every aperture in the coffee-pot closed to keep in the steam as much as possible.

As coffee possesses excellent antispasmodic properties it is a favourite beverage with the asthmatic and hysterical. The steam of boiling coffee has often been found beneficial to the eyes.

"*Milk*," Dr. Paris observes, "in its dietetic relations may be considered as intermediate between animal and vegetable food; it is easily assimilated, and therefore

affords a quick supply to the system, while it does not excite that degree of vascular action which is produced by other animal matters. Its nutritive powers may be increased by various additions, which have also, on some occasions, the effect of naturally correcting its tendency to acidity, and on others that of obviating the costiveness which it is liable to occasion: such objects are sometimes fulfilled by adding oatmeal gruel to it. In certain states of organic disease I have found that milk impregnated with the fatty matter of mutton suet is a valuable article of diet: such a repast is best prepared by inserting the suet in a muslin bag, and then simmering it with the milk. In common cases of dyspepsia it would prove injurious; but where it is an object to introduce much nutritive matter in a small space there is not a better form of aliment. With some practitioners it is a custom to recommend an admixture of lime-water with milk, to prevent the acidity which it is apt to create in feeble stomachs."

The sooner milk is taken after being drawn, if to be used in a raw state, the better. There is reason to believe that one of the principal advantages of sucking arises from the circumstance of the milk being swallowed unaltered by the air, as the atmosphere speedily makes a great change upon this delicate fluid. When infants, therefore, are nursed on cow or other milk it is of the greatest importance to give it directly from the animal. If this is not possible it ought to be carefully covered, and kept warm by placing the vessel containing it over boiling water.

Toast and Water will frequently agree with those stomachs which rebel against the use of the pure fluid. It is thus rendered slightly nutritive, holding a certain portion of gum and starch in solution. Sir Anthony Carlisle recommends that it should be prepared with hard biscuit reduced by fire to a coffee colour. "This drink," he says, "being free from yeast, is a most agreeable beverage. Much depends upon the water being at a boiling temperature, and it ought to be drunk as soon

as it has cooled sufficiently, for by keeping it acquires an unpleasant flavour.

Chocolate is nourishing, especially when boiled with eggs and milk. It is frequently recommended as a restorative in cases of emaciation and consumption. It is more nourishing and less heating than coffee. Chocolate, however, on account of its oily quality, is often oppressive to some stomachs. To the corpulent and weak the use of it is improper, and if they be immoderate eaters it induces inflammatory diseases and apoplexy. It also disagrees with persons much employed in mental pursuits.

Cocoa is usually considered a substitute for chocolate. As it contains less nutritive matter it is not so objectionable; and, as the oily matter exists only in small quantities, it is less likely to disagree with the stomach.

Barley Water is an extremely useful drink, and will be found to agree with most persons. It may be made more palatable by the addition of lemon-juice, cream of tartar, wine, raisins, milk, &c., as circumstances may admit.

This is the ptisan of Hippocrates, preferred by him to every other aliment in acute diseases.

The following is a good receipt for making this wholesome beverage:—

Take two ounces of pearl barley, and four pints and a half of water. First wash away with cold water any foreign matter adhering to the barley; then, having poured upon it half a pint of the water, boil for a few minutes. Having thrown away this water pour the rest, first made hot, upon the barley; then boil down to two pints, and strain. For the compound decoction, take of the decoction of barley two pints; figs sliced, two ounces; liquorice-root sliced and bruised, one ounce; raisins stoned, two ounces; water, one pint. Boil down to two pints, and strain. Taken freely for common drink it is a useful diluent in many disorders. Its utility may be further promoted by the addition of gum arabic and cream of tartar, a drachm of

each to a pint of the decoction, sweetened with manna or sugar, as the state of the patient's bowels may require: it proves nutritive and aperient. This drink is also greatly improved by the addition of lemon-juice and sugar candy.

Gruel is excellent and wholesome. Dr. Franklin was accustomed to take a large basin of warm gruel every morning, to which he added a small slice of butter, a piece of toasted bread, and some nutmeg. The expense of this mess, which was his favourite breakfast, was only three halfpence. He mentions an old Roman Catholic lady, who, having disposed of all her property for charitable uses, reserved only £12 a year to herself (and even of this small pittance she gave a part to the poor), and lived entirely on water gruel. On this diet she never suffered sickness.

CHAPTER V.

CLOTHES.

"The fashion
Wears out more apparel than the man."

SHAKESPEARE.

"Appearances to save, his only care,
So things seem right, no matter what they are."

CHURCHILL.

NOTHING contributes more essentially to health and comfort than a well-directed attention to our *clothing*. The general properties of a good, commodious, and comfortable dress may be comprised as follows, viz., that it be soft and pliable, so as not to obstruct the free and easy motions of the joints, nor in other respects to incommode either by its weight or tightness; that it be adequate to protect the body from the external influence of the atmosphere, and preserve the body in that degree of temperature which is most agreeable, as well as best adapted to the exercise of the different functions and motions compatible with a state of health; that it do not produce any detrimental effects, so as to increase an unnecessary degree of perspiration, nor absorb the vapours of the atmosphere.

Dress unduly regulated is not only a restraint upon the body, but has an important influence on the mind. Thus Horace, with that correct observation of human nature by which he was so eminently distinguished, quotes an instance of a person who, when he maliciously intended to injure another, gave him a present of costly clothing. This brought about a total alteration in his

hopes and plans, made him indolent and luxurious, and a spendthrift, so that he was at last reduced to the necessity of betaking himself to the trade of a gladiator, or becoming the driver of a green-grocer's hack. It is obvious that there is no greater imprudence than yielding implicitly to fashion; the dress should always feel easy, and be adapted to the season. By throwing off thick clothing too soon in spring, and putting it on too late in autumn, we run the risk of having fevers in summer and colds in winter. Leave off winter clothes late in the spring; put them on early in the autumn. Delicate and dyspeptic persons are often distressed by changing their dress, which should be as uniform as possible in thickness, quality, and form, especially flannel, or, indeed, whatever is worn next to the skin. The change of a thick waistcoat for a thin one, or of a long one for a shorter one, not putting on winter garments soon enough, or leaving them off too soon, will often excite a violent disorder in the lungs, bowels, &c.

Persons engaged in *sedentary employments* must be almost constantly under the influence of cold, unless the apartment in which they work is heated to a degree that subjects them, on leaving it, to all the dangers of a sudden transition, as it were, from summer to winter. The inactivity to which such persons are condemned, by weakening the body, renders it incapable of maintaining the degree of warmth necessary to comfort without additional clothing or fire. Under such circumstances a sufficient quantity of clothing of a proper quality, with the apartment moderately warmed and well ventilated, ought to be preferred for keeping up the requisite degree of warmth, to any means of heating the air of the room so much as to render any increase of clothing unnecessary. To heat the air of an apartment much above the ordinary temperature of the atmosphere we must shut out the external air; the air also becomes extremely rarefied and dry, which circumstances make it doubly dangerous to pass from it to the cold, raw, external air. But in leaving a moderately well-warmed

room, if properly clothed, the change is not felt, and the full advantage of exercise is derived from any opportunity of taking it that may occur.

The only kind of dress that can afford the protection required by the changes of temperature to which this climate is liable is *woollen*. Nor will it be of much avail that woollen be worn, unless so much of it be worn, and it be so worn as effectually to keep out the cold. Those who would receive the advantage which the wearing woollen is capable of affording must wear it next the skin, for it is in this situation only that its health-preserving power can be felt. The great advantages of woollen cloth are briefly these—the readiness with which it allows the escape of the matter of perspiration through its texture—its power of preserving the sensation of warmth to the skin under all circumstances—the difficulty there is of making it thoroughly wet—the slowness with which it conducts heat—the softness, lightness, and pliancy of its texture.

Cotton cloth, although it differs little from linen, approaches nearer to the nature of woollen, and on that account must be esteemed as the next best substance of which clothing may be made.

Silk is the next in point of excellence, but it is very inferior to cotton in every respect.

Linen possesses the contrary of most of the properties enumerated as excellencies in woollen.

All females who are engaged in sedentary employments would do well to wear *stays* made of some *very soft and warm material*, which would protect them from the cold, and afford a moderate support, such as might be worn without injury.

Those who wear *flannel waistcoats* are recommended to have their new ones about the middle of November, with sleeves to them coming down to the wrist.

"It is a habit with many," observes Sir George Lefevre, "to wear their *flannels in bed*, which is by no means advisable unless under circumstances where chamber warmth cannot be commanded, and even then

it is better to heap additional covers on the bed than to wear flannel next the skin at night. It loses half of its daily advantage by this nocturnal use, and, unless where there is confirmed disease, and risk of accession of cold from partial removal of the bedclothes during sleep, it should always be dispensed with. The body rises more refreshed and more invigorated from having been enveloped with linen than when cased in flannel for so many hours successively. It is a more comfortable sensation to sponge the chest with vinegar and water, and then put on a dry flannel jacket, than to take a damp one off and put it on again."

Coats should be made so large that, when buttoned, we may be as easy as when they are unbuttoned, so that, without any unpleasant pressure on the chest, &c., a coat may be worn closely buttoned up to the chin: the power of doing this is a convenient provision against the sudden transition from heat to cold. Boerhaave observed that only fools and beggars suffered from cold, the latter not being able to procure sufficient clothes, the former not having the sense to wear them. All *tight* sleeves of gowns, wristbands, shirts, bracelets, &c., ought to be carefully avoided; they occasion swelling of the veins on the back of the hands, and a rigidity of the joints.

The constant use of *cravats* too voluminous, or composed of too thick materials, renders the neck peculiarly liable to the impression of slight degrees of cold: we believe that to this cause are to be referred many inflammatory affections of the throat.

Around the neck are situated many large blood-vessels connected with the brain, as well as other important organs, which cannot be compressed without injurious consequences. So long as the cravat is loose and light no inconvenience is experienced; but when it is made to embrace the neck with a tight grasp the free return of the blood from the head is impeded, the face becomes red and turgid, and the martyr to fashion experiences pain and an over-fulness of the head, without

suspecting for a moment the source from which his complaints arise. When the body is thrown into exertion with the throat thus begirt, the evil is augmented, and in those of full habits dangerous affections of the head are the consequence.

The opposite extreme to this treatment of the neck and the throat by males is too often practised by the more delicate sex. The dress of females is, in most seasons, an inadequate security against the weather; but the half-clad costume of the evening dress for concerts, the theatre, and parties, is the source of most of the diseases which afflict their pleasure-seeking and incautious victims. It has been remarked that females belonging to the Society of Friends are less subject to phthical ailments than other young women, from the fact that the dress enjoined by their order is a sufficient protection to the thorax.

Perhaps no part of the body ought to be so well protected as the *feet*. There is such an intimate connection between the different parts of the body and the feet, that attention to them ought never to be overlooked. When any part of the body has suffered from previous disease, cold and damp applied to the feet uniformly occasion a recurrence of such complaints in a remarkable degree. To prevent this, woollen stockings are preferable to any other kind of covering. When silk, or any other description of stockings are deemed necessary, they can be worn over the former without occasioning any disagreeable increase of bulk.

One of the most fertile sources of incurable disease in women results from *wet feet*. Many delicate females, from an infatuated regard to fashion, walk abroad in damp, ungenial weather in boots or shoes more suited for the house than out-of-door exercise. But how, conceding all the beauty claimed by its admirers to an exhibition of small feet in neat tight shoes, can we receive this as a substitute for clear complexion, brilliant lustre of the eye, and the mild smile of content, all lost by repeated attacks of cold, or the

coming on of dyspepsia and sick headache, the consequences of wet and cold feet? Custom, it is alleged by some, renders persons thus exposed less liable to suffer; but it is idle to talk of females accustoming themselves to having their feet chilled, damp, or wet an hour or two in the streets during the day, when for the remainder of this period they take the greatest pains to have them dry and warm by toasting them, perhaps for hours, before a large fire.

The individual who wishes to preserve health and life should change, with all possible speed, any clothing that may be *wet or damp* from exposure to inclement weather, and persist in *moderate exercise* until the heat of the body is again restored. He should approach the fire only by degrees, or, what is even preferable, if the exposure to wet or cold has been of some continuance, he should retire at once to bed, and drink moderately of tepid barley water or gruel.

The feet of the stockings ought neither to be too tight nor too wide—the former cramp the feet and distort the toes, the latter injure the skin by their friction.

The *night-dress* requires particular attention. The shirt-collar and wristbands ought to be very loose. Persons who are subject to coldness of the feet ought to wear woollen stockings, but not those which have been worn during the day, in bed. Every person should have a *dressing-gown* of flannel or lined cotton stuff, as few are exempted from the risk of being called up at night.

With regard to *covering the head* the following rules will be found useful:—Not to cover the head too much. In very cold or very hot climates to cover the head according to the season. In dry and temperate climates to wear little and light covering. Leave the head bare in the house, and strengthen it as much as possible by frequently bathing it in cold water.

The common *black hat* in ordinary use is a most inefficient protector against the heat of summer and the

damp of wet weather. The felt hats with large brims are much better adapted to the changeable climate of England, and should be generally adopted. It is of great importance that the hat should not fit tightly on the head.

Gloves should be worn without the elastic bands and buttons used to keep them properly adjusted, as they obstruct the circulation.

The *dress of children* should be light, simple, and loose. By being as light as is consistent with due warmth it will neither encumber the infant nor cause any waste of its powers; from its simplicity it will be readily and easily put on, so as to prevent much exposure to cold; and its looseness will leave full room for moving and stretching its limbs. The clothes of children can hardly be changed too often, and it is right to have them clean every day.

But while due freedom of action must be observed in the dress of the young, the greatest care ought to be taken that *proper warmth* should be given by efficient clothing in inclement seasons. Erasmus Wilson has some forcible remarks on this subject, which are well deserving of attention:—

“Are the little ‘Highlanders’ whom we meet during three out of the four quarters of the year, under the guardianship of their nursery-maids, dawdling about the streets, in our public walks, or squares, properly protected from the cold? Are the fantastically attired children whom we see ‘taking an airing’ in carriages in our own parks sufficiently and properly clad? If these questions can be truly answered in the affirmative then, and then only, our remarks are needless. There can enter into the parent mind no more baneful idea than that of rendering children ‘hardy’ by exposing them unnecessarily to cold, and by clothing them inefficiently. I have known instances wherein parents, acting on this principle, have entirely failed in rearing their offspring. Does nature treat her progeny thus? Does she not, first of all, insure the birth of her young

only at a kindly season, and then provide them with downy coverings, warm nests, and assiduous protectors? And we must imitate nature if we would give to Britain a race capable and worthy of maintaining her independence and honour. The little denizens of a warm nursery must not be subjected, without a carefully assorted covering, to the piercing and relentless east or north-east wind; they must not be permitted to imbibe the seeds of that dreadful scourge of this climate, consumption, in their walks for exercise and health; they must be tended, as the future lords of the earth, with jealous care and judicious zeal. *One-sixth of the deaths of young children, it must be remembered, result from cold.*"

It is true that children may also be brought up too tenderly, but extremes are never right. It would be impossible to lay down precise rules for every variety of case, and much, therefore, must be left to the good sense and discretion of the parent. We may remark, however, firstly, that the lungs of young children cannot bear as low a temperature with safety as children of more advanced age, nor even those of more advanced age so low a temperature as an adult. Secondly, that the injury which young children receive when exposed to a very low temperature is through the medium of the lungs, and is not of a direct kind, for it generally requires the sudden application of warmth to call into action the injurious effects of the previous cold; therefore this important caution suggests itself in the management of children who have been unavoidably or unnecessarily exposed to a low temperature, viz., not to bring them too suddenly into an atmosphere of high temperature. Thirdly, as it is the lungs which especially suffer from a low temperature, no precautions of covering the body can protect them with certainty against the consequences of such exposure; yet, if the body be well protected, it will very much diminish the chance of injury to the lungs, by tending to maintain and equalise excitement. Fourthly, if both lungs and body be exposed, the

system has then to contend against the depression consequent upon the exposure of a large surface of skin, as well as that of the lungs; therefore the risk of injury is increased from this circumstance.

When we observe the extreme anxiety of mothers to improve the beauty and impart grace to the forms of their daughters, we cannot but pity the ignorance and infatuation which induce them, in too many instances, to resort to means calculated much more effectually to defeat the object so ardently desired than to promote it. A very slight knowledge of the human frame, and of the manner in which it is influenced by external agents, would teach them the absurdity of all attempts to supply, by artificial means, what can result only from the unassisted efforts of nature. In infancy, as well as in adult life, the first and most important object of consideration should be to preserve and promote the health and vigour of the body, since with its health we necessarily maintain its symmetry and improve its beauty. Bodily deformity, unless the effect of unavoidable disease or accident, is, in the great majority of cases, produced by nursery mismanagement, and the employment of the very means which are resorted to in order to prevent it.

The fact cannot be too often repeated, nor can it be too seriously urged upon parents, that the foundation of a graceful and just proportion in the various parts of the body *must be laid in infancy*. A light dress, which gives freedom to the functions of life and action, is the only one adapted to permit perfect, unobstructed growth. The young fibres, unconstrained by obstacles imposed by art, will shoot forth harmoniously into the form which nature intended. The garments of children should be in every respect perfectly easy, so as not to impede the freedom of their movements by bands or ligatures upon the chest, the loins, the legs, or arms. With such liberty the muscles of the trunk and limbs will gradually assume the fine swell and development, which nothing short of unconstrained exercise can ever

produce ; the body will turn easily and gracefully upon its firmly poised base ; the chest will rise in noble and healthy expanse ; and the whole figure will assume that perfectness of form with which beauty, usefulness, and health are so intimately connected.

"*Silk*," observes Dr. Robertson, " as a remarkable non-conductor of electricity, deserves to be made use of more generally than it is in this country as an article of under-clothing. For this purpose it should be woven entirely of what is called bright or wrought silk, in contradistinction to what is called spun or spurious silk, and the under-garment is to be manufactured in a similar way, and of a similar material, to stockings, but woven with much thicker thread into a very thick and heavy fabric. Where the expense of this provision cannot be conveniently incurred an under-garment of flannel, or of a corresponding thick and close woollen web, should be always preferred.

" Many prefer wearing *leather* as the under-garment, because it does not irritate the skin so much as flannel. Leather is chiefly objectionable from its not affording, however well dressed, so ready a passage to the insensible perspiration as flannel or calico. I think," adds Dr. Robertson, " that thin and very fine flannel may generally be well borne, and must always be greatly preferable, or that this lined with calico, or even calico alone, is generally much better than the use of leather for this purpose. Linen ought not to be worn next to the skin unless by the very robust."

The author from whom we have quoted the above remarks gives some excellent practical hints to the ladies on certain *inconsistencies with regard to dress*.

" I will venture to touch as briefly as may be on the extreme imprudence—not to give what may be the mere effect of thoughtlessness a worse name—of having the morning, the walking, and the evening dress made of such very different materials, and in so very different a degree protective against the cold. How perfectly unreasonable it is to cover the neck and shoulders and

arms at one period of the day, and to leave them uncovered at another; to wear a warm thick dress at breakfast, made to cover duly the neck and arms, and a cold thin dress at dinner, leaving so much of the person entirely uncovered, and in this imperfect attire to expose the person to the cold air of passages, halls, staircases, or perhaps to the totally unmodified and unwarmed air of the evening or the night. It need not be said how common this is, nor what a direct contravention it is of the organic laws. It should not be lost sight of, moreover, that such acts of imprudence may possibly, while the health continues in high and unimpaired vigour, be followed by no bad consequences; yet that the slightest cause of disturbance or exhaustion, such as sitting up one single night to a later hour than usual, or a slight attack of indigestion, or over-fatigue, or contracting cold feet, or any other equally probable circumstance may destroy the happy equilibrium, and enable the cold to check the circulation of the blood in the skin, and thus to throw the blood upon some vital organ, giving rise to immediate disorder, and perhaps to ultimate and not remote disease.

"There is another custom, or habit, or usage in the female dress which deserves notice. It is that of covering the head with a cap in the morning, and leaving it uncovered in the afternoon or evening. It is an indefensible custom, and by no means free from risk.

"It by no means follows, from what has been said, that people's systems are to be overheated, or their surfaces relaxed, or their systems enfeebled by an excessive amount of clothing—an amount disproportioned to the requirements of health and strength. The single instance in which people appear to be apt to clothe themselves in an undue degree in this country, is the surrounding the neck with thick kerchiefs or shawls in cold weather. Unless when much or unusually exposed to the influence of cold the risk of local relaxation from this practice, and of an unadvisable degree of chill when such extra clothing is removed, deserves consideration,

and may lead to greater evils than such extra clothing is calculated to obviate. The same remark applies to the use of various warm articles of dress made of fur, &c., worn round the neck and shoulders. They are usually much too heating, and consequently relaxing, and are only justifiable under circumstances of extreme and long-continued exposure to cold, or in the instance of very delicate and susceptible systems."

With regard to the *influence of coloured clothes upon health*, Dr. Robertson says:—"In hot weather, and more particularly in the intertropical countries, it may be desirable to wear clothes which will absorb as few of the sun's rays as possible, and white garments are shown to be the best calculated to answer this intention. Again, in cold weather it is desirable to wear clothes which will part with as little as possible of the heat of the body by radiation. The professional man, clad in black, is, strange to say, the most unphilosophically dressed; for in the summer his clothes, by absorbing to a great extent the rays of the sun, render him much hotter; and in the winter his clothes, carrying off by radiation much of his bodily heat, render him much colder than would clothes of any other colour."

For an infant, from the period of birth until the growth of its hair is sufficient to render unnecessary artificial protection of any kind, a thin, light, and soft cap should constitute the only head-dress. It is all-important that the material of which it is formed be soft and perfectly smooth. A lace or embroidered cap may be very beautiful, and well adapted to gratify the parent's pride of dress, but is an improper covering for an infant's head. The roughness and harshness of its surface are calculated to fret and irritate the delicate skin with which it is in contact, and, if not productive of eruptions and sores, cannot fail to occasion some degree of pain or uneasiness to the wearer. The cap should never be allowed to cover or confine the ears, otherwise, by keeping the latter unnecessarily warm, and improperly compressing them against the sides of the

head, it is apt to occasion pains and inflammation of these organs, or a disgusting and sometimes dangerous soreness and running behind the external ears.

As soon as the head has become well covered with hair the cap may be dispensed with during the day, as well as at night; and when the child is taken out a very light and easy hat may be worn, rather, however, in compliance with the customs of society than as a necessary protection.

CHAPTER VI.

EXERCISE.

"Begin with gentle toils, and, as your nerves
Grow firm, to hardier by just steps aspire.
The prudent, even in every moderate walk,
At first but saunter, and by slow degrees
Increase their pace."

ARMSTRONG.

"To cure the mind's wrong bias, spleen,
Some recommend the bowling green ;
Some hilly walks ; *all* exercise :
Fling but a stone, the giant dies."

GREEN.

THERE is not a single power of the body or the mind which *inaction* does not enfeeble or destroy. The lameness of gouty feet, for instance, is often owing to their not having been sufficiently used. It is but a fair retribution that we should be deprived of a faculty which we have not enough valued or employed. Between the two principal causes of gout there is a natural alliance. Men are apt to indulge to excess in the luxuries of the table from a deficiency of other occupation; and there is a tendency, on the other hand, in gluttonous indulgence, to induce sluggishness and a disposition to intemperate repose. It is upon *exercise*, associated with regularity and moderation of living, and not upon drugs, that health depends.

Posture is nearly connected with the subject of bodily exercise. The usual attitude of a person occupied in reading or writing tends to obstruct the passage of

the blood through the pulmonary and abdominal vessels. Nothing is more important than *frequently varying our active occupations*, so that every portion of the body may be duly and equally exercised.

If any particular limb or set of muscles be habitually called into action, while the others are allowed to remain in a state of comparative rest, it will require a disproportionate degree of development and strength, by which means the symmetry of the body is destroyed, its vigour is impaired, and the foundation laid for diseases of a very serious character.

This tendency of *partial* exercise to produce an unequal growth of the body is, to a certain degree, evinced in almost every individual. The limbs of the right side being those most constantly called into action acquire, in general, a marked superiority in bulk and strength over those of the left. In certain mechanics this circumstance is exhibited to a much greater extent; thus the muscles of the arms of the blacksmith, the weaver, and numerous others, will be found, in the majority of cases, to be much larger, and possessed of greater strength, than those of the inferior extremities. An instance of this is exhibited by the watermen of London, engaged almost constantly in rowing. From the partial manner in which their limbs are necessarily exerted their figure becomes ungraceful in the extreme: the chest is broad, it is true, but the shoulders are high and square, the neck thick and short, and the back rounded, giving the appearance of a stoop; in consequence of the great size of the muscles upon the shoulders and upper part of the back, while the inferior half of the body would seem almost emaciated. Their chest and arms are almost herculean, while their legs are miserably small.

Such a form, though it gives precisely that degree of strength requisite for the mere handling of the oar, and for certain other mechanical employments, to say nothing of its positive deformity, incapacitates its possessor almost entirely from any occupation in which

the legs and feet are actively engaged. A contrast to these watermen is often exhibited in the professional pedestrian and public dancer, in whom the legs are large and fleshy, and the upper parts of the body disproportionately small.

In order correctly to understand this subject it is necessary to remark, that exercise consists strictly in the alternate *flexion and extension of the limbs*; in other words, in the quick succession of muscular action and repose. Permanent contraction of the muscles, however powerful or long-continued, produces scarcely any of those good effects which are to be anticipated from exercise. Thus, while sitting or standing, a numerous set of muscles are in action, but in neither of these positions can the body be said to be in exercise. The latter is, therefore, always partial, even in the labourer who, in a standing posture, exerts to their utmost the muscles of his arms. Such a one avoids, it is true, the constrained and injurious position of the body which occurs in the sedentary mechanic, but so far merely as regards exercise he has but little advantage over the latter. It is on this account that walking is a means of recreation admirably adapted to almost every individual of the working classes, as it tends to produce an equal degree of development in the lower parts of the body with that which is produced by their daily avocations in the upper. Those, however, on the other hand, who are obliged to walk, or in any other manner exert their inferior extremities for the greater part of the day, will find in certain mechanical employments in which the arms chiefly are engaged, while the rest of the body is allowed to remain in a state of repose, the kind of exercise they require in order to balance the effects of that to which they are ordinarily subject.

The following advice on this subject may be useful:—

Your amusements should be adapted to the nature of your employment through the day. Thus, should you be exhausted by toil, choose some amusement in which

skill and dexterity are required rather than labour; but if your employment during the day should have been accompanied with but little exertion, choose those sports which call the various muscles into play. Take care, however, that your amusements and your sports bear not on the limbs which work has wearied. Let him whose arms are fatigued with wielding the pickaxe or the ponderous hammer amuse himself, when his task is over, with a rural walk; whilst he whose occupations weary his legs and feet should rather seek amusement in those sports in which the arms are chiefly concerned.

If an attention to a proper variety in bodily exercises be important in the adult, it is so in a tenfold degree in respect to children. Boys, it is true, unless unwisely thwarted in their natural inclinations, will most generally be found to engage in those sports calculated to call equally into action almost every muscle of the body; but in the case of girls it is different. Subjected from an early period to an artificial discipline and a thousand injudicious restraints, they are very apt to be debarred active exercises of almost every kind, or, when these are permitted, they are partial, and have, therefore, a tendency to produce deformity and disease.

Females, both by constitution and education, are particularly liable to suffer from the passive state induced by over-refinement. So much is present to captivate their native delicacy and timidity, that they overlook the danger arising from these, being morbidly increased. Ever busied with unnumbered details, they have frequently no one engrossing occupation. Leaning for support on some loved relative, and deluded by the hope that they may so continue secure and blameless, they are too often unprepared for the disappointments and the duties of real life. The willing homage of the protecting sex raises them above the thoughts and the cares of the busy world. They are seldom if ever told of the uncertain tenure of sickly beauty's "frail and feverish being," and they hear not the still small

voice of nature which warns them to be women. Untried and close concealed, the character fails in stamina and spontaneous power; while, from deficient exercise, the constitution becomes incapable of resisting the slightest shock, and the body, unequally and prematurely expanded in the sultry drawing-room, is destitute of the symmetrical proportions of real beauty. When these fair ones are called upon to be wives and mothers they are often found to be doubly wanting.

To render *exercise appropriate* during health it is necessary that motion be communicated to every part susceptible of it; that the breast be dilated beyond the usual bounds of rest; that all the muscles attain their utmost degree of extension and contraction; that strength, of course, be exerted, and enjoy all its developments. The effects of such exercise, when not carried to the extent of producing undue fatigue, are to promote the circulation of the fluids throughout the body, to render the digestion of food more easy and perfect, to insure the nutrition of every part of the system, and to enable perspiration and the other excretions to take place with regularity. Throughout all nature want of motion indicates weakness, corruption, inanimation, and death. Baron Trenck in his damp prison leaped about like a lion, in his fetters of seventy pounds weight, in order to preserve his health.

With regard to the *choice of exercise for curing diseases* there are many particulars to be attended to. Every kind of exercise and every degree of it is not fit for all constitutions, far less in every disease or at all times. The proper kind of exercise to be recommended must depend upon particular circumstances of habit, age, constitution, or disease, and wherever disease is present the advice of a medical practitioner should always be obtained.

As regards the *time of taking exercise* there are various opinions. Some recommend early in the morning, when the stomach is empty and the body is refreshed by sleep; but many find it difficult to take

exercise when fasting. It is generally admitted that between breakfast and dinner, when the weather is not unfavourable, is an excellent time for taking exercise in the open air. Dr. Franklin observes that exercise should precede meals, not immediately follow them; the first promotes, the latter, unless moderate, obstructs digestion. Darwin remarks that in summer weak people cannot continue too long in the open air if it can be done without fatigue; and in winter they should go out several times in a day for a few minutes using the cold air like a cold bath, to invigorate and to render them more hardy.

Exercise should be equable and regular—not a long, fatiguing walk, or other violent muscular exertion one day, and entire neglect of it for the succeeding two or three days.

In *walking* it is very important that the body be upheld as upright as possible, the shoulders being kept back, and the breast projected somewhat forwards, so as to give to the chest its full dimensions, the lungs being by this means allowed sufficient room to expand fully, breathing is rendered free and easy, and every vital action is performed with vigour and regularity. The attitude thus assumed in walking, places, in fact, all the organs of the body in their most natural position, and frees them from all constraint. Hence to the sedentary, whether student, artist, or mechanic, a brisk walk is one of the most effectual antidotes to those injuries so liable to result from the bent and fixed position in which their bodies are held for the greater part of the day.

“Walking,” observes Mr. Donald Walker, “exercises a greater influence over the economy when it takes place on inclined planes than on a flat surface. In ascending, the effort is made in a direction directly opposed to the general tendency of heavy bodies; the body is strongly bent, the upper part of the trunk in advance, the action of the posterior and anterior muscles of the thigh is considerable, and circulation and respiration.

are speedily accelerated by the violence of the muscular contractions. In descending, on the contrary, effort is requisite to keep up the body, which tends to obey the laws of gravitation; and to moderate the tendency of gravity to project forward in the centre, the body is thrown back, the sacro-spinal mass and the posterior muscles of the neck are strongly contracted, the knees bent, and the steps much shorter."

Men with long, flat feet, and the heel bone little projecting, are bad walkers.

Riding on horseback is one of the most manly and healthful exercises, and is frequently found efficacious in curing diseases to which persons who have led a sedentary life are subject. The dyspeptic, and those predisposed to pulmonary consumption, experience great relief from riding.

Bishop Burnet, in one of his works, expresses his surprise that the lawyers of his time enjoyed, in general, better health, and were longer lived, than individuals of other professions. Upon consideration he was led to attribute this entirely to their being obliged to "ride the circuit" almost constantly, in order to attend the various courts held in the country, and which they were accustomed to do chiefly, if not entirely, on horseback.

"Riding," observes Dr. Cheyne, "shakes the whole frame, promoting a universal perspiration and secretion of all the fluids, to which may be added the various changes of the air through which they so quickly pass, every alteration of which, as it were, becomes a new bath, and thereby variously twitching the nervous fibres, to brace and contract them as the new scenes amuse the mind."

"A lady," writes Dr. Caldwell, "possessed of a fine figure, who dresses with taste, and rides gracefully, never appears to more advantage than when seated on an elegant and well-gaited horse. Nor can she indulge in a more salutary mode of exercise. For younger females it is equally beneficial. As riding on horse-

back, moreover, requires some boldness of spirit, the practice tends to lessen that female timidity which is often inconvenient and injurious to its possessors, as well as others. However desirable sensibility may be in a reasonable degree, like all other qualities it may become excessive, turn to evil, and impair health. Experience teaches us that it often does so, especially in feeble persons, in whom it is most prone to become inordinate on account of their feebleness. To restrain it, therefore, so as to hold it within due bounds by invigorating exercise and judicious exposure to something bordering on danger, or at least resembling it, is an end that should constantly be aimed at in the physical education of females, and also of males who have anything of feminine susceptibility in their temperaments."

Horse exercise, in the case of *weakly persons*, should be regulated so as not to produce exhaustion. Sydenham lays much stress upon this exercise, and it was one of his quaint sayings, that in the treatment of most complaints his physician was a horse, and his apothecary an ass, or that horse exercise and asses' milk were the remedies upon which he most relied.

Among the pleasing delusions of the rich and fashionable world we may rank *carriage airings*,* which are supposed by the indolent to possess all the advantages of pure and unobstructed exercise without fatiguing, in any degree, the body. Thus pleasure

* The celebrated Dr. Franklin remarks, "We abound in absurdity and inconsistency. Thus, though it is generally agreed that *taking the air* is a good thing, yet what caution against air! what stopping of crevices! what wrapping up in warm clothes! what shutting of doors and windows, even in the midst of summer! Many London families go out once a day to take the air—three or four persons in a coach, or perhaps six. These go three or four miles, or as many turns in Hyde Park, with the glasses both up, all breathing over and over again the same air they brought into the coach from town, with the least change possible, and rendered worse and worse every moment; and this they call *taking the air*."

carriages are furnished with well-cushioned seats and well-adjusted springs, for the purpose of guarding the muscles of the wealthy from undignified exertion. The preservation of health, which so greatly depends upon the movements of these muscles, must give way to ease and comfort. It is worthy of remark, also, that the class of persons by whom this mode of conveyance is commonly resorted to are those who stand most in need of active exercise.

Resorted to almost constantly by the females of wealthy families in their out-of-door excursions, the carriage thus deprives them of the little exercise they would otherwise enjoy, were their tours of shopping, or their visits of duty, ceremony, and friendship performed on foot. By the head of the family the carriage is most frequently ordered to the door, at that period of life when increasing wealth enables him to withdraw from the every-day bustle of active business, and when it is all-important for the preservation of health that some kind of regular exercise should be resorted to, in the absence of even that which previously his avocation forced upon him.

It is true that a ride of some distance in a vehicle, the motion of which is communicated to the body of the occupant, may have a very excellent effect in the case of those who are too debilitated to partake of a sufficient amount of exercise on foot or upon horseback; but, under such circumstances, this kind of riding is, in general, the one most carefully avoided.

Riding in a carriage has been supposed by many to be an admirable means for exercising in very cold or rainy weather; the reverse is, however, the case. Carriages should never be employed excepting during very clear weather, and at those seasons of the year when one or more of the blinds can be kept open during the ride. In so small a space as the interior of a carriage, especially when occupied by more than one person, the air very quickly becomes contaminated by respiration, and prejudicial to those who continue to inhale it.

For many reasons a *gig*, driven by the individual himself, is preferable to a covered carriage. Fresh air, occupation, and a considerable degree of exercise may be obtained by riding in the former, while all of these, as we have seen, are, in a great measure, precluded in the latter.

During youth and a state of health, walking, either alone or alternated with riding on horseback, should invariably supersede the use of a carriage; and even those who are induced to ride for the prevention of a threatened disease, or for the recovery of health, if their strength is not too much exhausted, will find on horseback the object they are in search of much more certainly than in any of the carriages, to the invention of which convenience or luxury has given rise.

Running and leaping are of too violent a nature to be used by any but those who are already in the enjoyment of health and bodily vigour, and even by these cannot be often repeated or continued for any length of time. The running footmen of former days are said to have been, in every country, short-lived. Few of them escaped consumption before they arrived at their thirty-fifth year. By those who are affected with a tendency to palpitation, shortness of breathing, or cough, and by those who are subject to a spitting of blood, running and leaping ought, in particular, to be cautiously avoided, as by their use an augmentation of these affections is very apt to be occasioned. By the young, however, and those labouring under no particular disease, a race or a leap may be occasionally entered upon with advantage.

Dancing, under proper limitations, is a salutary species of exercise, but when too long continued or too violently performed it may be attended with very pernicious effects. The exertion of so many muscles as is required in dancing, and the quick inspiration of a warm vitiated atmosphere in a crowded room, excite the circulation of the blood to as great an extent almost as in a fever. When to this is added the use of stimu-

lating drinks, which increase still more the motion of the heart, or of ices and iced drinks, which suddenly chill the system, together with exposure, in a state of perspiration and in insufficient clothing, to the cold, damp night air, and that unnatural excitement by which sleep is banished at the very period when nature calls for repose, we need not be surprised that spitting of blood, and consumption of the lungs, should be frequent among the votaries of the ball-room or the midnight assembly.

Dancing, under certain conditions, as we before observed, is a salutary exercise; but it is so only when every limb and muscle is allowed to participate naturally and without constraint in the motion thus communicated to the body. When, on the contrary, dancing is performed in a dress by which this is prevented, to say nothing of the total absence of all grace, injury, and that of a very serious character, is extremely liable to result.

Various amusements, such as *fencing*, *football*, *hand-ball*, and *swimming*, when properly conducted, are amongst those species of exercise which are well adapted to the inhabitants of a city. They allure the sedentary forth into the fields, while in their prosecution the mind and muscles are both excited to an extent sufficient for the purposes of health.

There is no exercise more bracing and delightful than *skating*. It exposes all parts of the body more to the pure air, by the rapid and lengthened sweeps of the exercise, than can be accomplished by any other, except, perhaps, horse-racing. But, like every good thing, skating requires moderation in its enjoyment. Without treating upon falls, broken arms, and fractured skulls, which all our prudence must endeavour to avert, we may mention the evils of carrying the exercise to over-fatigue, and the trying to display difficult evolutions and movements, that very frequently produce dangerous ruptures, bursting of blood-vessels, and all the serious consequences of labour carried beyond due bounds.

Rowing, to those who are not daily accustomed to the task, may be ranked among the most active species of exercise. To the robust and those in perfect health this amusement, when not carried to the extent of producing very considerable fatigue, is one admirably adapted to impart strength to the arms, and breadth and development to the chest. When, however, it is too frequently repeated, to the neglect of other species of exercise, it is very apt to produce a partial and ungraceful expansion of the frame.

Exercise, however, must be regulated by certain rules, the principal of which is to avoid carrying it to excess, to proportion it always to the state of health and habit of the individual. Persons of short breath, predisposed to determination of blood to the head, subject to palpitation of the heart or general weakness, are not to believe that a course of severe exercise will do them good; on the contrary, many severe results often follow over-fatigue. For the same reason it is desirable to avoid active exertion immediately after a full meal, as the foundation of heart diseases is sometimes laid by leaping or running after eating. *Severe exercise should never be taken in hot weather*, for the excitement, added to the heat, has double force in exhausting vitality and weakening the body. The great object should be so to blend exercise and repose as to insure the highest possible amount of bodily vigour. It must be recollected that exhausted muscles can be restored only by the most perfect rest.

"By the aid of *muscular exercise*," observes Mr. Caldwell, "in maturing, vitalising, and circulating the blood, our labours may be made to contribute to the vitality of the whole system, to the size and tone of every organ, and the soundness and vigour of every function of it, the moral and intellectual ones not excepted. Physical exertion, while enlarging and strengthening the muscles themselves, gives them a promptitude and an adroitness of action important in most of the concerns of life. What is man without a vigorous and well-

trained system of muscles—instruments which he can turn with ease and effect to any occupation in which his fortune may summon him to engage, which he can apply at will to matters of business, pastime, or pleasure? Without such muscular discipline and power he would be wretched in himself, and a cipher in the world. Nor is the whole yet told. Elegance and symmetry of person, beauty of complexion, vivacity and force of expression, grace of motion, and all else that is attractive in human nature, depend, in a high degree, on well-directed muscular exercise."

"Muscular exercise," also remarks Dr. James Johnson, "whether in high or low life, carries off and prevents an accumulation of excitability, and consequently of irritability, and thus conduces, in a very marked manner, to health of body and tranquillity of mind. Want of exercise, especially when combined with mental exertion, disturbs the equilibrium of the circulation, and causes the blood to accumulate more in some organs than in others. Thus the brain is the great sufferer; hence the headaches, confusion, loss of memory, giddiness, and other affections, so common among sedentary people. The liver, from its peculiarly languid circulation, is the next most common sufferer. The vital current stagnates in the venous system of the biliary apparatus, and inert or bad bile is the consequence. This deranges the whole of the digestive organs, and through them almost every function of mind and body. Nothing can prove a complete substitute for exercise, whether active or passive, in the prevention of these numerous evils. Exercise equalises the circulation as well as the excitability, and thus checks the disposition to congestion and irritability."

Locke, in his "Treatise on Education," proposes that every individual in affluent circumstances, or who is destined for a profession, should be taught in early life the use of the *ordinary mechanical tools*.

It is undoubtedly true that the saw, the plane, and the turning-lathe afford admirable means for in-door

exercise, particularly in the winter season. The exertion required in their management preserving, also, the body sufficiently warm without the aid of artificial heat, their use would enable many hours of the day to be passed with comfort out of the enervating atmosphere of a heated room. Mechanical occupations of any kind constitute, however, but a miserable substitute for active exercise in the open air.

It has frequently been remarked that females in the middle classes of society, who are under the necessity of busying themselves about their household concerns, are, in general, favoured with better health than those whose wealth enables them to command the labour and attendance of numerous servants.

Many persons are apt to confound occupation or industry with exercise. It is, perhaps, this error which has fixed many a female to her piano, her needlework, her books, or drawing, during those very hours which a proper regard for her health ought to have induced her to devote to active exercise.

The above occupations, together with the fashionable manufacture of *objets de fantaisie*, are doubtless innocent occupations for a part of that time not demanded by important duties, but they can never supply the place of even in-door exercise. They are all of a sedentary character, and produce the very effects exercise is intended to obviate.

When, however, the inclemency of the weather, or any other cause, will not permit a portion of the day to be spent in the open air, various means will readily occur by which active exercise may be procured at home, any species of innocent exercise being, in fact, preferable to a state of absolute inactivity.

Those who read or write much should pay great attention to their position. They ought to sit and stand by turns, always preserving the body as erect as possible. The chest or stomach should never be pressing for any length of time against a hard substance. It has an excellent effect to read or speak aloud frequently; this

not only exercises beneficially the lungs, but nearly the whole body. The health of those whose professions call upon them to speak in public has been found to suffer less than that of the solitary student.

Public speakers, it is true, sometimes injure themselves by overacting their part, but this is their own fault. The individual who dies a martyr to long-continued vociferation merits but little sympathy.

Midnight studies ought undoubtedly to be avoided as in the highest degree pernicious to health. The morning has been allowed by all medical writers to be the time best adapted for study. It is also, however, the most proper season for exercise, while the stomach is empty and the spirits are refreshed by sleep. The student should, therefore, spend the morning occasionally in walking, riding, or other manly exercise in the open air. Every studious person, as well as every individual engaged in sedentary pursuits, should, indeed, make exercise a part of his daily business, and, if possible, should allow nothing to interrupt his hours of recreation, any more than those devoted to study or to the calls of his profession.

It has been the reproach of the learned that, with the view of relieving the mind when fatigued by study, they have, in too many instances, resorted to the use of ardent spirits. Stimulating liquors and a prolonged or intense application of the mental powers produce nearly the same effects upon the body. When both are united the constitution very rapidly sinks under their influence. Were the student, when his spirits begin to flag, to mount on horseback, and gallop ten or a dozen miles, he would find it a far more effectual remedy than any cordial medicine in the shop of the apothecary, or all the strong liquors in the world. We may observe that, with respect to those kinds of exercise which are most proper for the studious, they should not be too violent, nor ever carried to the degree of excessive fatigue. They ought, also, to be frequently varied, so as to give action to all the different parts of the body,

and should, as often as possible, be in the open air. In general, riding on horseback, walking, working in a garden, or other active diversions, are to be preferred. But, as a celebrated writer, who was himself a professed student, has very properly remarked, "A solitary walk or ride, merely for the sake of exercise, and with no other object to stimulate our progress, as it is of all amusements the dullest, so it is found rather hurtful than advantageous. The mind still meditates in solitude, and the body at the same time labours, so that both are exhausted at once; and the student returns to his closet fatigued, dejected, and disappointed. Some little amusement must, therefore, be contrived, or some business engaged in, which may operate as a loadstone.

Whatever may be the exercise chosen it ought never to be taken after a full meal.

As a partial substitute for active exercise the use of *frictions* to the surface and an occasional cold bath may be recommended.

CHAPTER VII.

SLEEP.

"For shame!
 Get up, sweet slug-a-bed, and see
 The dew-bespangling herb and tree:
 Each flower has wept, and bow'd towards the east
 Above an hour since, yet you are not dress'd,
 Nay, not so much as out of bed,
 When all the birds have matins said,
 And sung their thankful hymns; 'tis sin,
 Nay, profanation, to keep in,
 When as a thousand virgins on this day
 Rise sooner than the lark to fetch in may."

HERRICK.

"Sleep, that knits up the ravell'd sleeve of care,
 The death of each day's life, sore labour's bath,
 Balm of hurt minds, great Nature's second course,
 Chief nourisher in life's feast."

SHAKESPEARE.

THE celebrated John Wesley, who paid every attention to the best means of invigorating his body, in order that he might be enabled to exert himself for the general benefit of his fellow creatures to the utmost his corporeal and mental powers would allow, was accustomed to awake every night about twelve or one o'clock, and lay without sleeping for some time. He therefore very justly concluded that this was caused by his lying in bed longer than nature required. To be satisfied on this point he procured an alarum, which awakened him next morning at seven, nearly an hour earlier than his usual time of rising. He still lay awake at night. The

ensuing morning he rose at six, but, notwithstanding this, he lay awake the second night. The third morning he rose at five, but, nevertheless, lay awake the third night. His next hour of rising was at four, and, lying no longer awake, he, for a period of above sixty years, continued the same practice, and, taking the year round, never lay awake for a quarter of an hour at a time during a month. By the same experiment, rising earlier every morning, any person may discover how much sleep he really stands in need of. Wesley was in the habit of going to bed at ten, so that by rising at four he had six hours' uninterrupted sleep, which he considered to be sufficient for his own health. Invalids, however, and persons of a delicate constitution, and those accustomed to much bodily fatigue during the day, may require seven or eight hours' sleep.

Dr. Franklin published an ingenious essay on the advantages of early rising. He called it "An Economical Project," and calculated the saving that might be made in the city of Paris, *by using sunshine instead of candles*, at no less than £4,000,000 sterling.

Dr. Doddridge mentions, in his "Family Expositor," that it was to his habit of early rising the world was indebted for nearly the whole of his works.

Sir Thomas More remarks, in his preface to the "Utopia," that he completed the work by stealing time from his sleep and meals. He made it his invariable rule to rise at four.

Bishop Burnet was an habitual early riser. When at college his father aroused him to his studies every morning at four o'clock, and he continued the practice during the remainder of his life.

Bishop Horne, also, closes his "Version of the Psalms" by saying, "Could the author flatter himself that any one would take half the pleasure in reading the following exposition which he hath taken in writing it, he would not fear the loss of his labour. The employment detached him from the bustle and hurry of life, the din of politics, and the noise of folly; vanity and

vexation flew away for a season ; care and disquietude came not near his dwelling. *He arose fresh as the morning to his task*, the silence of the night invited him to pursue it, and he can truly say that food and rest were not preferred before it. Every psalm improved infinitely upon his acquaintance with it, and no one gave him uneasiness but the last, for then he grieved that his work was done. Happier hours than those which have been spent in these meditations on the songs of Zion he never expects to see in this world. Very pleasantly did they pass, and moved swiftly and smoothly along, for, when thus engaged, he counted no time. They are gone, but have left a relish and a fragrance upon the mind, and the remembrance of them is sweet."

"I spent," says Dr. Paley, when giving an account of the early part of his life at college, "the first two years of my under-graduateship happily, but unprofitably. I was constantly in society, where we were not immoral, but idle and expensive. At the commencement of the third year, after having left the usual party at a late hour, I was awakened at five in the morning by one of my companions, who stood at my bedside and said, 'Paley, I have been thinking what a fool you are. I could do nothing, probably, if I were to try, and I can afford the life you lead. You could do everything, and cannot afford it. I have had no sleep during the night on account of these reflections, and am now come solemnly to inform you that if you persist in your indolence I must renounce your society.' I was so struck," says the doctor, "with the visit and the visitor, that I lay in bed the greater part of the day, and formed my plan. I ordered my bed-maker to lay my fire every morning, in order that it might be lighted by myself. I arose at five, read through the whole day, took supper at nine, went to bed—continued the practice up to this hour." The consequence was he became a great man.

Volumes might be filled with the names and accounts

of early risers. Bishop Jewel rose regularly at four. Dr. Franklin was an early riser. Sir Matthew Hale studied sixteen hours a day, and was an early riser. Dr. Parkhurst, the philologist, rose regularly at five in summer, and six in winter, and in the latter season he made his own fire.

It is a common complaint with would-be early risers that, after having formed the resolution in the most determined manner, and even after having acted upon it for a few mornings, they have insensibly returned to their habit of sleeping, and required a new stimulus to operate upon them. For two or three mornings they have risen earlier than their accustomed time; the novelty of the thing gave them pleasure; the morning air produced a liveliness and vivacity of spirit. Pleased with the conquest they had made, they imagined the point gained by a single effort, and they relaxed themselves in all the security of victory. In a few mornings the first impulse loses its original force, the stimulus subsides, and the novelty vanishes. The whole is succeeded by a good-natured, self-complacent assurance of success. The diminution of the usual quantity of sleep occasions a more than ordinary degree of drowsiness, and a desire to continue in bed. The consequence of all this is, they relapse at once into the old degeneracy, they become dispirited by their failure, and require a new energy to rouse them from their lethargy. Perhaps the best remedy for this is to conquer the habit by degrees. Instead of taking the fort by storm, instead of rising two hours earlier all at once, the much better way is to secure five minutes every morning, until we arrive at the hour which appears the most eligible for rising. In this way the daily subtraction from sleep will be but trifling, and will occasion no drowsiness on the following morning, which the sudden change from eight to five must necessarily produce. This is certainly the sure and easy method of daily undermining an injurious habit, and daily confirming a most useful one. In this way the pleasure of the

victory is felt before we are conscious of having commenced the combat. In this way the last day of each week will be half an hour longer than the first. By this means, at the termination of a month, we may become early risers, with the additional advantage of having formed the habit in such a manner that there will be no danger of its being relinquished.

While the practice of supplanting the evil habit by the better one is going on, the mind should be strengthened by the recollection of the long train of advantages to be acquired from the victory, and by an impression of the habitual persuasion of the importance of the endeavour. The mind, every night when we are going to bed, should be impressed with the indispensable necessity of rising early next morning. Immediately before falling asleep a certain time at which to rise should be thought upon. The value of the smallest portion of time should be estimated. The regret which the loss of it occasions should be remembered. Recurrence might be given to the fact of time being a talent of incalculable value, and of our being obliged to render an exact account of it. We should also look back upon the countless hours already lost by us, and we should prove our penitence for their loss by the economical use of those which remain.

No one should retire to rest immediately after a full meal, or in an agitated state of mind. Indeed, after a light supper, at least two hours ought to elapse before bedtime; and, as a requisite for sound and invigorating repose, it is necessary to banish all anxious, gloomy, or depressing ideas and thoughts, and every species of mental exertion. The pernicious practice, adopted by many, of reading in bed until they fall asleep is particularly to be avoided. In place of this dangerous expedient to invite sleep, it would be more salutary to walk up and down the room for a few minutes, or to partake of any other gentle exercise.

Sleep may be prevented by improper diet and bad digestion, violent emotions of the mind, &c. Drinking

of tea, coffee, and any thin or weak liquor, immediately before going to bed, will, with many people, retard sleep.

There may always be suspected some derangement in the machinery of the constitution when sleep does not follow as a natural consequence of the activity employed throughout the course of the day. Various practices have been recommended to promote sleep—some to be observed before going to bed, and some after. Listening to music, reading, &c., are good preparations for repose. Perhaps there is no better rule than to use the flesh-brush generally before going to bed, as well as after getting up in the morning.

Nightmare is, for the most part, a result of indigestion. It is not unfrequently caused by sleeping with the head too low, and lying on the back, the weight of the bedclothes bearing on the breast. The remedies are, the use of the bath, to take little or no supper, and to sleep on a hard bed with the head raised.

In his advice to invalids regarding sleep Dr. Cheyne observes, "I recommend to weak persons to avoid as much as possible the evening dews, nocturnal studies, and unreasonable watching; in summer to go to bed with the sun, and in winter to rise at least by break of day. Those who live temperately will necessarily sleep but little; but the sleep will be sound, and the spirits free on rising in the morning. Lying awake in bed in the morning is decidedly reprehended, and eight hours' sleep is the longest time allowed for a valetudinarian."

The young and the middle-aged, if in health, ought not to spend above seven hours in bed, or from ten to six in summer, and from eleven to seven in winter. If the remaining sixteen, however, are properly employed, the eight devoted to repose need not be regretted. If fewer hours suffice it is better to sit up at night than to rise in the morning by candle-light, which often has a severe and unpleasant effect upon the eyes.

Sufficient sleep is necessary, not only for intensive life,

but also for extensive, in regard to its support and duration. Nothing accelerates consumption so much—nothing wastes us so much before the time, and renders us old, as a want of it. Continued watching unites all the properties destructive of life, incessant wasting of the vital power, and of the organs. We must not, however, on this account, believe that *too long* continued sleep is the best means for preserving life. Long sleep accumulates too great an abundance of pernicious juices, makes the organs too flaccid and unfit for use, and in this manner can shorten life also.

In a word, no one should sleep less than six hours, nor more than eight hours. This may be established as a general rule. The following recommendations may be useful to those who desire to enjoy sound, peaceful repose :—

The place where we sleep must be quiet and obscure. The less our senses are acted upon by external impressions the more perfectly can the mind rest. One may see from this how improper is the custom of having a candle burning in a bedchamber at night.

We should eat little, and only cold food for supper, and always some hours before going to bed.

When in bed we should not lie in a forced or constrained posture, but almost horizontally, the head excepted, which ought to be a little raised. A half-sitting posture in bed is prejudicial; the body then forms an angle, every circulation in the stomach is checked, and the spine is always much compressed. By this custom one of the principal ends of sleep, a free and uninterrupted circulation of the blood, is defeated, and in infancy and youth deformity and crookedness are often the consequence.

All the cares and troubles of the day must be laid aside with our clothes—none of them must be carried to bed with us; and in this respect we may, by habit, obtain great power over the thoughts.

Sleeping during the day is, on many accounts, a pernicious practice. Debilitated persons injure them-

selves much by this habit, which keeps them awake the greater part of the night.

Too much sleep blunts the senses, stupefies the mental faculties, and renders both less fit for performing the active duties of life. Of course this does not apply to infants. For the first months after birth a healthy child sleeps fully two-thirds of its time. This propensity requires to be indulged by day as well as by night; but with judicious management it may be brought in a short time to require and enjoy repose during the latter period only. Young children, when fatigued by exercise, will also, in general, be found inclined to sleep during the day; from indulging them in a short repose under such circumstances no bad effects can result, provided their clothing be perfectly loose, so that every part of their bodies is freed from bands or ligatures.

The popular maxim, "Early to bed and early to rise," is one which should be rigidly observed by every individual. It has been remarked that in the natural state the disposition to sleep usually comes on soon after the commencement of darkness; and, according to the oldest and most accurate observers, three or four hours' sleep before midnight is very nearly as refreshing as double that portion in the morning. Persons who spend the day in manual labour or active exercise in the open air with great difficulty keep awake for a few hours after the night has closed in; and this disposition to early sleep is, perhaps, one of the strongest indications of perfect health. On no account should any one permit himself to again slumber after the moment of his first awaking in the morning, whether this happen at the early dawn, or before the sun has risen, even though from accident or unavoidable causes he may not have enjoyed his six or eight hours' of repose. It is much better to make up the deficiency, if necessary, at some other time, than to attempt taking another sleep. Whoever accustoms himself to rise thus will enjoy more undisturbed sleep during the

night, and awake far more refreshed than those who indolently slumber all the morning.

Even this *second nap* is, however, by no means so injurious to health as the practice of continuing in bed of a morning long after waking. Nothing tends, especially in children and young persons generally, more effectually to unbrace the solids, exhaust the spirits, and thus to undermine the vigour, activity, and health of the system, than such a practice. After rising it is an excellent custom to wash and dress immediately, or, at any rate, before breakfast, so as to be ready to go out when business or exercise requires it. If dressing is deferred until after breakfast more time is wasted or lounged away than is compatible either with healthful exercise, or with the rules by which a man of business ought to conduct himself. The morning toilet, when properly gone about, is of great importance to health. The chief object to be attended to is cleanliness of person, even to minutiae; a daily change of linen is highly desirable; a frequent one is necessary.

"It must not be forgotten," observes Hufeland, "that we spend a considerable portion of our lives in the bedchamber, and consequently that its healthiness or unhealthiness cannot fail of having a very important influence upon our physical well-being."

The condition of our sleeping apartments is, generally speaking, a matter for grave reproach in our present boasted age of improvement. How often are families crowded at night into obscure and confined chambers, while the best and healthiest rooms of the house are reserved for ostentatious display! The largest and most lofty room should be used for sleeping, and it should be freely ventilated during the daytime at all seasons, except when the weather is damp. The bed-chamber should be divested of all unnecessary furniture, and should never contain more than one bed. *The practice of sleeping in an apartment which is occupied during the day is very improper.* Perfect cleanliness

and a sufficiently free ventilation cannot, under such circumstances, be preserved, especially during cold weather; hence the atmosphere becomes constantly more and more vitiated, and altogether unfitted for respiration.

While too great a degree of caution cannot be observed to avoid *sleeping in damp rooms, beds, or clothing*, the temperature of the bedchamber should, if possible, never be augmented, under the ordinary circumstances of health, by artificial means. As this apartment is to be reserved solely for repose a fire is never necessary, excepting, perhaps, during very severe weather, and even then the temperature ought not to exceed fifty degrees. A sleeping apartment in which a large fire has been kept up for several hours previous to the period of retiring to rest may present an appearance of the most perfect comfort; it is, however, at the same time, a means of very effectually enervating the system, creating an increased susceptibility to the influence of cold, and thus opening the way to the attack of some of the most serious diseases, especially of the chest. A person accustomed to undress in a room without fire, and to seek repose in a cold bed, will not experience the least inconvenience, even in the severest weather. The natural heat of his body will very speedily render him even more comfortably warm than the individual who sleeps in a heated apartment, and in a bed thus artificially warmed, and who will be extremely liable to a sensation of chilliness as soon as the artificial heat is dissipated. But this is not all—the constitution of the former will be rendered more robust, and far less susceptible to the influence of atmospherical vicissitudes than that of the latter.

A practice equally imprudent with that of occupying a heated bedchamber during cold weather is the one very commonly pursued, of attempting to *reduce the temperature* of this apartment in summer by leaving the windows open at night. Many persons have experienced serious and irreparable injury to their health

by being in this manner subjected, whilst asleep, to a current of cold air from without. While a free admission of air is permitted throughout the day, the direct rays of the meridian sun being, however, at the same time, as much as possible excluded, *the windows of the bedchamber should be invariably closed after night.*

When *night-lights* are employed in an apartment they should be placed upon the hearth within the chimney.

"*Healthy beds,*" observes the author of "*Hints on Health,*" "are not generally understood in England. Formerly a curtained box, half filled with musty mattresses, was the usual form, and quite as barbarous a custom it was as the air-tight wooden troughs and messes used to sleep in by the Chinese. The Italians generally use iron bedsteads, and frequently expose the mattresses and feather beds to the sun and air on the balconies, &c. The French use cotton for beds, because all animal substances are liable, without frequent cleaning and care, to propagate vermin. Feather-bed cleaners are well aware that feather beds become heavier and swarm with animalculæ by being slept on, principally owing to the accumulated perspiration, which is also perceptible to other observers by a somewhat fusty smell in most bedrooms before the windows have been opened."

The custom of making the bed immediately on its becoming unoccupied is quite as objectionable as rolling up the mattress and bedclothes, and hiding them in a corner, or in a sham piece of "genteel" furniture, as if a bed were an object to be ashamed of.

The *best bed for children* is a sacking, and a cotton or straw mattress, as used for soldiers.

Very hard beds should not be used, as they may occasion children to rest on too few parts at a time, which hardens these parts by pressure, and prevents their growth.

The *warming of beds*, by charcoal fires in particular, by its imparting poisonous vapours to the clothes, is highly pernicious.

Feather pillows are not less injurious than feather beds. By preserving the head of an immoderate warmth

they are apt to induce catarrhs, and in the young may become the remote or exciting cause of inflammation in the ear, eruptions, pains in the head, or even more serious complaints.

Closely shrouding a bed with curtains is highly pernicious. By preventing a free circulation of the air they oblige the individual who reposes within them to breathe an atmosphere vitiated by repeated respiration. They become, also, receptacles for fine particles of dust, which are liable to be inhaled during sleep, whenever disturbed by the motion of the curtains or of the bedstead: this alone is a cause to which many young persons may refer the first development of a consumptive attack.

Equally pernicious is the practice of sleeping with the face enveloped in the bedclothes. Our own feelings might be supposed sufficient to induce us to assume in bed that position in which every portion of the body will be left the freest from constraint; yet in the case of children some cautions may be necessary, in order to prevent an awkward position from being indulged in, calculated to produce a prejudicial effect upon the symmetrical growth and development of the system. Hence it is prudent, when young persons lie upon their backs, to reduce the size of the pillows, in order to guard against a contortion of the spine, while lying on the side requires pillows sufficiently large to fill up the space between the head and point of the shoulder. *A constrained position*, if it have no other bad effect, is a certain preventive to sound and refreshing sleep.

Beds should never be placed upon the floor. It is well known that, in all apartments occupied by living beings, the inferior portions of the atmosphere are always the most impure. *The most wholesome situation for the bed* is in the middle of the room, and raised some feet from the floor.

CHAPTER VIII.

SANITARY ARRANGEMENT OF A DWELLING.—FRESH
AIR AND VENTILATION.

“ This guest of summer,
The temple-haunting martlet, does approve,
By his loved *mansionry*, that heaven's breath
Smells wooingly here, and
Where they most breed and haunt, I have observed,
The air is delicate.”

SHAKESPEARE.

“ I turn'd into an alley 'neath the wall,
And stepp'd from earth to hell. The light of heaven,
The common air, was narrow, gross, and dun,—
The tiles did drop from the eaves; the unhinged doors
Totter'd o'er inky pools, where reek'd and curdled
The offal of a life; the gaunt-haunch'd swine
Growl'd at their christen'd playmates o'er the scraps;
Shrill mothers cursed, wan children wail'd, sharp coughs
Ran through the crazy chambers, hungry eyes
Glared dumb reproach and old perplexity,
Too stale for words.”

KINGSLEY, *The Saint's Tragedy*.

WHEN it is considered that *a much greater portion of our time is spent within doors than without*, it is a circumstance to be wondered at that more attention is not usually paid to the construction of buildings with a view to health. Indeed, there are few houses, whether of larger or smaller dimensions, where some particulars have not been neglected, and where some improvements might not be pointed out. The principles which should guide us in the construction of our houses are simple; they should not be too cold, too hot, or in the

smallest degree damp, while the air within should, if possible, be as pure as the air without. The rules regarding these points might be extended even to the apartments which are not inhabited, for store-rooms and pantries in a house are extremely unwholesome if provisions of various sorts, animal as well as vegetable, be kept in them, especially oil, candles, fat, flesh meat, whether in a raw, boiled, or roasted state, pastry, fruit, &c. The larder should be placed without doors.

The means of excluding cold is much facilitated by the invention of glass, and the great improvements which have been made in the management of fuel; but the exclusion of the outward air is now carried to a most injurious excess, for the art of the carpenter is employed to shut it out as a dangerous enemy, instead of its being considered as a useful friend. In our remarks upon ventilation the reader will find this subject treated upon with the attention its importance demands. We may observe that Faust, in his "Catechism of Health," gives as a criterion of care in respect to the *cleanliness and ventilation of apartments*, the following signs:—When there are no cobwebs in the corners or on the ceiling of the room, nor dust, nor straw, nor filth of any kind; when the windows are clean and clear, and no offensive smell or unpleasant sensation is experienced by a person who enters it that has been just breathing the open air, we may conclude that it is as it ought to be.

To prevent the admission of too much heat into a house is fully as necessary in some countries as the exclusion of cold in others. In India, during the hot season, the air in rooms is kept gently in motion by what they call punkahs, or fans, suspended from the ceilings, covered with cotton or silk, and having fringes below. These are kept in motion by an attendant. In China, during warm weather, they have an open matted screen for the door. By this constant ventilation they obviate, in some degree, the ill effect that might otherwise arise from a want of cleanliness. This

exemplifies the definition of a wholesome house, "where a dog could creep in under the door, and a bird could fly in at the window."

Moisture is still more fatal than either heat or cold, which any person who sleeps for a night in a damp room will soon experience. The constant washing and wetting of the insides of houses, when carried to excess, is productive of mischief. The moisture of a wet room or staircase must evaporate into the surrounding atmosphere.

All ground floors of houses that have any signs of moisture should be rejected, and, if they have been long uninhabited, strict attention should be paid to these and to every other circumstance by which the air within them may be vitiated before they are possessed. No clearer proof can exist of the comparatively salutary effects of the upper compared with the under floors of such houses than every day presents itself to us, for where dampness exists in a house the under floor is always the most unhealthy; and, if possible, to increase these evils, the custom of papering the walls, and thereby harbouring the noxious effluvia, with the putrefying swarms of vermin which are generated and die under it, is the most effectual means.

A writer in the "Scientific American" states "that when the hair used in mixing mortar is not properly cleansed of the animal matter that adheres to it a fetid miasma is generated, and a house built with such mortar is consequently unhealthy. I have experienced that a *room freshly papered*, and for some time after, had a most disagreeable and sickly smell from the size or animal matter used in paper-hanging. I have also observed that old worsted carpets emit a mouldy effluvia, as also the decaying boards under them, thus producing a mixed miasma of decaying animal and vegetable matter. The rooms below the level of the earth where servants sleep are damp and mouldy, consequently the servants first catch colds and fevers, and from them their masters and all the household. It

is very desirable to construct houses so that the servants' apartments are not *under* the level of the earth."

It is essential to exercise great caution in selecting a house to see that the *drainage* and *sewerage* are in proper order, for death and misery are the frequent consequences of neglecting such precaution. The concurrent testimony of all the gentlemen engaged in the Health of Towns Commission has been, that the ravages of epidemic and contagious diseases may be fairly attributable to bad drainage and bad ventilation. By taking any large town in the kingdom it will be seen that the localities of epidemic diseases are the close, confined, and uncleansed streets occupied almost entirely by the poorer classes.

Dr. Southwood Smith says, "In every district in which fever returns frequently, and prevails extensively, there is uniformly a bad sewerage, a *bad supply of water*, a bad supply of scavengers, and a consequent accumulation of filth."

Another precaution that is necessary in taking a house is to see that no *cesspool* exists. These nuisances are not only injurious to health, but they deteriorate the value of property; the foundations of houses become completely saturated by the foul fluid percolating through the cesspools, and the walls are greatly damaged. The adjacent springs become impregnated by the offensive matter oozing from them, and the water obtained from pumps and wells, in a vast number of instances, has been rendered useless.

A proper supply of good wholesome water is indispensable. Some idea of the vast consumption of this God-sent fluid may be gathered from the fact that the quantity daily consumed in London is equal to the contents of a lake fifty acres in extent, and of a mean depth of three feet. This quantity is by no means proportionate to the great and growing wants of the population.

The air within the house ought, if possible, to be as

pure as that without. The most healthful as well as comfortable apartments are those which enjoy a pure and free circulation of air in summer, and the cheerful rays of the sun in winter: *a proper size and height* are also requisite to constitute a wholesome apartment, for low rooms are detrimental to health, particularly when inhabited by large families. The *sitting-rooms* ought to be above the ground floor, or in the second story. With regard to *dining-rooms*, strictly speaking, we ought not to sit long in them, as the air is rendered impure by the steams of food. Persons accustomed to sit for hours over the bottle in dining-rooms should remember this. Some individuals have adopted the practice of retiring into another apartment immediately after the dishes are removed, and there taking their dessert and wine; but this can only be done in houses of large dimensions.

However convenient and cheerful may be the introduction of *gas into our apartments*, we cannot but protest against the common use to which it is now applied in houses. Carburetted hydrogen gas is a deadly poison, and its effects are soon perceptible in close apartments where gas is burned. The pains in the head, the nausea, and distressing languor which persons frequenting crowded assemblies feel, in consequence of inhaling the unburnt gas, are sufficient proofs of its dangerous properties. Sir Humphrey Davy performed some experiments in order to test this. He introduced into a silk bag four quarts of this gas, nearly pure, which had been carefully produced from the decomposition of water by charcoal an hour before the experiment, and which had a very strong and disagreeable smell. "After a forced exhaustion of my lungs," he observes, "the nose being accurately closed, I made three inspirations and expirations of the gas. The first inspiration produced a sort of numbness, and loss of feeling in the chest and about the pectoral muscles. After the second inspiration I lost all power of perceiving external things, and had no distinct sensation, except a terrible oppression on the chest. During the third expiration this feeling

disappeared; I seemed sinking into annihilation, and had just power enough to drop the mouth-piece from my unclosed lips. A short interval must have elapsed, during which I respired common air, before the objects about me were distinguishable. On recollecting myself I faintly articulated, 'I do not think I shall die.' Putting my finger on the wrist, I found my pulse thread-like, and beating with excessive quickness. In less than a minute I was able to walk, and the painful oppression on the chest directed me to the open air. After making a few steps, which carried me to the garden, my head became giddy, my knees trembled, and I had just sufficient voluntary power to throw myself on the grass. Here the painful feeling of the chest increased with such violence as to threaten suffocation. At this moment I asked for some nitrous oxide. Mr. Dwyer brought me a mixture of oxygen and nitrous oxide, which I breathed for a minute, and believed myself relieved. In five minutes the painful feelings began gradually to diminish. In an hour they had nearly disappeared, and I felt only excessive weakness and a slight swimming of the head. My voice was very feeble and indistinct: this was at two o'clock in the afternoon. I afterwards walked slowly for about half an hour, and on my return was so much stronger and better as to believe that the effects of the gas had disappeared, though my pulse was 120, and very feeble. I continued without pain for nearly three quarters of an hour, when the giddiness returned with such violence as to oblige me to lie upon the bed; it was accompanied by nausea, loss of memory, and deficient sensation. In about an hour and a half the giddiness went off, and was succeeded by an excruciating pain in the forehead and between the eyes, with transient pains in the chest and the extremities. Towards night these affections gradually diminished; at ten no disagreeable feeling except weakness remained. I slept soundly, and awoke in the morning very feeble and very hungry. I have," adds Sir H. Davy, "been minute in the account of this

experiment, because it proves that carburetted hydrogen acts as a sedative, *i.e.*, that it produces diminution of vital action and debility without previously exciting it."

After this proof of the *poisonous nature of carburetted hydrogen*—after the cases of sickness and headache which have occurred in consequence of its inhalation in crowded assemblies, we may safely conclude that the introduction of gas into our apartments is fraught with serious consequences to health.

While on the subject of houses an important fact claims our consideration, and which builders will do well to remember.

The Smoke Act has already done wonders in assisting to *purify the air*, by compelling manufacturers to adopt its requirements; but the remedy does not lie here. According to Mr. Wright, the Government Inspector of Smoke Nuisance, upwards of 3,000,000 tons of coal are annually imported into London, and that only 1,000,000 tons of this quantity are consumed for manufacturing purposes, and the smoke arising from this is conveyed into the air by 6,000 tall chimneys, ranging from 25 to 200 feet high. It is, therefore, obvious that fully two-thirds, or 2,000,000 tons of coals, are annually consumed by the 390,000 reeking dwelling-houses of the metropolis, and that a single stack, consisting of ten or twelve house chimneys, during the winter months will give out quite as much smoke as those manufacturers' chimneys ranging from 25 to 60 feet high, which class proportionately comprise by far the greater number of the 6,000 shafts, and are obliged, by the clauses of the Smoke Act, to consume their own smoke. It is evident, therefore, that by far the largest amount of smoke created in the metropolis is that emitted from the immense number of dwelling-houses.

The necessity of a *constant flow of fresh, pure air into the system* may be briefly stated.

It is well known that all animals possessing a double

circulation, or, in other words, the whole of whose blood passes in constant succession through the lungs, as well as through the heart, depend, for the continuance of their existence, on an uninterrupted supply of atmospheric air. To man, from the peculiar nature of his organisation, this constant supply is most essential, for a few minutes of suspended respiration will render him a lifeless corpse. The breathing of atmospheric air is, therefore, essential for the preservation of life, and must go on as regularly during sleep as when we are awake.

The heart makes about 75 beats in a minute, during which time it sends nearly 10 lbs. of blood through the arteries and veins. The quantity passing through the heart in one hour is "540 lbs. avoirdupois, or 1 hogsh-head and $1\frac{1}{2}$ pint; and in twenty-four hours 12,000 lbs., or 10,782 $\frac{1}{2}$ pints, or 24 hogsh-heads and 4 gallons." If there be health the work proceeds with unerring precision, carrying pure air to, and bad air from, every part of the human body.

The heart has four divisions: two to receive the blood after it is made from the food, called *auricles*; and two others called *ventricles*, to send it to the several stations where it is most needed.

After the blood comes to the heart from the veins it is necessary to send it to the lungs before it is fit for use. For this purpose there are muscles in the heart, which contract and force it out to the lungs.

Motion is of two kinds, voluntary and involuntary. That is voluntary which is performed by means of the bones, muscles, and tendons, and is influenced by the will or mind.

Involuntary motion is that produced by organs not connected with the bones, but which possess muscular fibres; as, for instance, the stomach, which is a hollow muscle, and digests its food without the knowledge of the mind.

The heart is also a hollow muscle, which is protected by a bag called the pericardium, made of strong and

rough materials. This case holds a very little water, just enough to permit the heart to move freely and easily, and is placed between the lungs.

The lungs fill all that cavity in the chest not occupied by the heart, and are composed of blood and air-vessels. They are so light that they would float in water.

When we take a breath of air we *inhale* it ; when we throw out a breath we *exhale* it. We inhale it to change the colour of, and to purify the blood. We *exhale* all that does us no good, but which would, if retained in the body, be an injury to us.

The air is divided into several gases, as oxygen, carbon, and nitrogen. The oxygen of the air unites with the dark blood in the lungs, and turns it to a red colour, which then rushes back into the heart. The muscles of the heart contract and send it through the arteries, to make skin, bone, flesh, hair, nails, and every other part of the body. It finally terminates in the small capillaries and veins, when it is changed into a dark red colour. It is then again unfit for nourishment, as some of the qualities have been taken out in its circulation. This dark red blood then unites with the chyle, is sent into the heart, thence to the lungs, and is purified by the air, then sent back with its colour changed, and proceeds as before stated.

The air we breathe is, when pure, composed of two gases in certain proportions, oxygen and nitrogen. Twenty-one parts of the former to seventy-nine parts of the latter, with a very small quantity of carbonic acid, make up an atmosphere fitted to maintain life and vigour. *Constant renewal is essentially necessary.* But on reaching the lungs the air undergoes a change ; more than a third of the oxygen is taken up by the blood, which gives off a similar quantity of carbonic acid, together with animal matters and watery vapour, while the nitrogen undergoes but little or no alteration. Oxygen, it will thus be seen, is the great supporter of animal life. While we are drawing our breath the

heart makes four beats, sending bad blood to the lungs to be purified, and good blood, filled with oxygen, to every part of the body.

Those who frequent crowded assemblies must necessarily subject themselves to the evil consequences arising from sudden transitions from heat to cold. It is better to avoid as much as possible such exposure, and those who go to these places for the mere sake of amusement must abide the consequences of any neglect of precautions manifestly needed to guard against such evils. *Ball-rooms and routs* are the last places to which any persons who have a due regard for health will venture. The ghastly train of consumptions which annually follow the votaries of pleasure should have a premonitory effect in warning them of the fatal results of imprudence. Not that we object to social meetings where a few friends assemble, and where no undue excitement of the mind occurs, but the serious evils which arise from crowded rooms not sufficiently ventilated, and where a large waste of physical energy is expended, late suppers, late hours, and nocturnal exposures.

"There are five circumstances," observes Dr. James Johnson, "to be attended to when we are subjected to the *influence of the night air*, viz., 1. The condition of the body before going out of doors. 2. The defence of the body's surface while exposed. 3. The defence of the lungs. 4. The exercise on the way. 5. The conduct to be observed on getting home.

"1. The condition of the body ought to be as warm as possible short of perspiration. Many lives are annually lost by the ill-judged caution of lingering about the halls and doors of heated apartments till the body is cool before venturing into the air. In this state it is highly susceptible of the baneful influence of the night. It would be better to issue forth, even with some perspiration on the surface, than wait until the system is chilled. The greater degree of animal heat in which we are, on going first into the night air, the less injury shall we sustain from it.

"2. As this injury is received through the medium of the skin and the lungs, it is quite evident that the safeguard of the former is warm clothing, constructed of materials that are bad conductors of heat, as woollen, cotton, &c.

"3. *The defence of the lungs* themselves has been strangely overlooked, though it requires but a moment's reflection to be convinced of the vast importance of this consideration. In the space of one minute the delicate structure of the lungs is exposed to an atmospherical transition of perhaps thirty or forty degrees from the overheated theatre to the freezing midnight blast. Is it not strange that we should have been so very solicitous about heaping fold over fold on the surface of the body, while we never dreamt of the extended surface of the lungs which we left completely exposed? Is it not still more strange that this should have been forgotten, when daily observation showed that the lungs were the organs which, nine times out of ten, suffered by these exposures?

"It cannot, therefore, be too strongly enforced, the necessity of *guarding the organs of respiration from the direct influence of the night air* by such mufflings about the face as may not only detain a portion of the air expired from the lungs each time, but communicate a degree of warmth to each inhalation of atmospheric air. A large net, for example, such as is vulgarly called a comforter, folded loosely round the face, will receive a portion of caloric, or heat, from the breath at each expiration, which portion will be communicated to the current of air rushing into the lungs at each inspiration, and thus a frigid nocturnal atmosphere is, in a considerable degree, obviated.

"4. As we proceed into the night air while the body is warm, so we should, by a brisk pace, endeavour to keep up that degree of animal heat with which we set out, and that determination to the surface which is so effectual in preventing affections of any internal organ.

"5. *As the sudden transition from a heated apart-*

ment to a frigid atmosphere must, in some degree, produce a determination to the centre, and more or less check the perspiratory process, some warm and moderately stimulating liquid should always be taken before going to bed, in order that the functions of the skin and the balance of the circulation may be restored."

It has been found that *the fumes of burning wood taint the air more than those of coal*, and charcoal more than either; and that the smoke of tallow candles is more injurious than that of wax or spermaceti. A single candle is supposed to consume a gallon of air in a minute, and, therefore, a great number of candles burning even in a spacious apartment must destroy the vivifying principle of a very large column of air in a very short space of time, not only by consumption, but contamination. It has been found, also, that the human breath taints the air more considerably in the afternoon than in the morning.

Fire has, in general, been deemed a purifier of air, and, under certain circumstances, it may be so in a relative degree, as, by dissipating the moisture of cold and damp places, and by rarefying the column of air within its influence, it may favour the admission of colder and denser air.

When Hippocrates was consulted concerning the best means of preventing the propagation of a contagious disease which infested a part of Greece, he advised that large fires might be made in a narrow pass formed by adjoining mountains, for the purpose of purifying the air.

It is doubtful whether the climate of this country be such as to admit of the general use of *close stoves*, few persons being able to endure the oppressive atmosphere which they occasion; and the reason possibly is, that our climate is both milder and more moist than that of the more northern parts of Europe.

A variety of circumstances concur, even in our habitations and apartments, to weaken and almost insensibly undermine the springs of life; but in public

meetings and private parties the evils arising from large fires, numerous lights, and crowded rooms are proportionately increased.

The casements of all public rooms and private apartments should be so constructed as to admit of constant ventilation, modified, of course, according to the size of the chamber. By thus promoting a free and constant circulation of air in every room, whether occupied or not, the external and internal air becomes nearly of equal temperature; the foul air which is generated in close unoccupied chambers, and which adheres to the walls and furniture, will be carried off before it is accumulated; and the usual practice of airing rooms by opening the windows and warming them with fires will be less, if at all necessary.

Even without altering the construction of the sash *the heat of sitting-rooms may be safely moderated*, and the air corrected, by raising a part of the sash most distant from the fire, and dropping the curtain before it. This is more necessary after dinner, when the air of the room has been tainted by the steams of the food. The opening of the windows being, even in private houses, much above the level of our bodies, obviates the objection of its being injurious, by exposing us to a current of air. But the truth is, that unless the wind sets in strongly from the quarter opposite to the open windows, the rarefied and foul air rushing through these apertures counteracts and resists the column of cold air. This is evident from a simple experiment. Apply a burning candle to the upper crevice of the door of a heated room, and the flame will tend outwards; if to the bottom crevice, inwards; a proof that, whilst the heated and foul air rushes out at the upper crevice, the colder and purer air enters below. Hence the impropriety of double doors, linings, listings, and sand-bags, all of which, by preventing some degree of ventilation, contribute to the evils they are supposed to obviate.

A thermometer placed in public rooms and the sitting-rooms of private houses would regulate the degree of

heat, which in winter ought rarely to exceed 58° or 60° Fahrenheit.

The *ventilation of sleeping apartments* is a matter of especial regard. If we allow only eight hours in the twenty-four to sleep, though many persons, especially invalids, spend many more hours in their bedchambers, we shall find that during more than one-third of our time we breathe the same stagnant, impure air, highly impregnated with noxious effluvia. Not only invalids, but persons in health, should admit a free circulation of air in their bedchambers by various ways and in different degrees, according to the season of the year and other circumstances. During the warm, close weather of the summer and autumnal months the chamber door may be left open for a few nights; afterwards a part of the sash might be left open, but the current of air intercepted by the shutter; and, as the person becomes more habituated to free air, the shutter also might be left open, and the force of the current might be modified by dropping a window curtain before it. In the colder months a window in an adjoining apartment may be left open, as also the door of communication, opening or closing the shutter, according as the wind does or does not blow directly from that quarter.

Chimney boards, as great impediments to a free circulation of air, ought never to be admitted into any apartment. It is scarcely needful to add that thick curtains closely drawn around the bed are very injurious, because they not only confine the effluvia thrown off from the body whilst in bed, but intercept the current of pure air.

It may be objected that, by the admission of cold air, persons, especially invalids, would be apt to *catch cold*, as it is commonly called; but, so far from this being the case, diseases from this cause generally proceed from persons being exposed to cold after being previously much heated, and so far is excessive warmth from being conducive to the cure of colds and their many dangerous consequences, that they are always

exasperated by hot, close apartments and hot regimen, and, therefore, the best means of preventing diseases from cold is to avoid the contrary extreme.

Those persons who have a window open in the bed-chamber, or an adjoining apartment, need not be under any apprehension of suffering by a current of air being immediately directed upon them whilst in bed, because, if the upper sash be open, the current will be considerably above the level of the bed; but if the lower sash be open it will be prudent to draw so much of the bed-curtain as to prevent the wind from blowing upon the person in bed. But the danger of catching cold from such current is more apparent than real, for if the head and body be properly covered there is no hazard; and one advantage of thus admitting air is, that persons who are in the habit of lying very warm will, by this expedient, find themselves much less oppressed and heated by a load of bedclothes, as the lungs, like the funnel of a stove, discharge the heated and foul air by means of the cool air admitted by every inspiration.

The *ventilation of nurseries* is a subject of vital importance. The apartment for children should be without carpet, and the bed without curtains. Wherever there is any quantity of curtains to a bed it is injurious. The effect of want of ventilation upon the rearing of children was very strikingly shown in the Dublin Foundling Hospital some years ago. Between the years 1781 and 1791 19,420 children were received into that institution, and of these 17,420 died. This great mortality was partly owing to the use of improper food; but the defects of ventilation were a strong reason.

The importance of a knowledge of the properties and uses of the atmosphere is very happily elucidated by the following anecdote. It is said that Dr. Darwin one day at Nottingham spoke thus to a large number of people around him:—"Ye men of Nottingham, listen to me. You are ingenious and industrious mechanics. By your industry life's comforts are procured for your-

selves and your families. If you lose your health the power of being industrious will forsake you. *That* you know; but you do not know that to breathe fresh and changed air constantly is not less necessary to preserve health than sobriety itself. Air becomes unwholesome in a few hours if the window is shut. Open those of your sleeping rooms whenever you quit them to go to your workshops. Keep the windows of your workshops open whenever the weather is not insupportably cold. I have no interest in giving you this advice. Remember what I, your countryman and a physician, tell you. If you would not bring infection and disease among yourselves, and to your wives and little ones, change the air you breathe. Change it by opening your windows several times a day."

There are two kinds of ventilation, natural and mechanical. Chimneys and fireplaces may be considered to belong to the former; valves, fans, and other contrivances to the latter.

The air which has been breathed becomes very warm, and rises to the upper part of the room, where it accumulates, and when it cools descends again on the heads of the inmates, unless means be taken for its removal. The most effectual method to accomplish this object is to make an opening close to the ceiling, and through the breast of the chimney. Two, three, or four bricks only need be removed. Into the vacant space a ventilator is to be placed. This is so constructed that it may be opened to any required distance, or closed at pleasure.

A ventilator on the same principle has been invented by Dr. Arnott. The door is so finely balanced as to be self-acting, and opens without assistance as soon as there is any heated air at the top of the room.

Another mode of admitting fresh air to a room consists in taking a pane of glass from the window—the further from the fireplace the better—and replacing it with a piece of perforated zinc of the same size. Another plan of admitting air is to remove part of the panel

of the door, and insert in its place a piece of perforated zinc provided with a flap.

A very simple method of ventilation adopted at Winchester College School, at the Town Hall of Basingstoke, and several large buildings in Hampshire, by Mr. Sharpe, C.E., is, we are informed, found to answer completely. After the system had been in action the first season at the Winchester College the head master, Dr. Moberly, said "he scarcely knew what the headache was, but prior to the ventilation being effected he had seldom been a day without it."

The vitiated air is drawn from the building through openings in the ceiling communicating with air trunks in the roof; these trunks are connected with the upright shaft of metal constructed in the chimney, which is heated by the fire used for warming the building: by this means the air in the shaft is sufficiently rarefied to produce an *upward current*. In the summer season a small gas-light is burned in the shaft; the gas is lighted at a small door at the bottom of the metal shaft, and produces a sufficient draught for ventilation in the summer. Fresh air is admitted through plates of perforated zinc let into the skirting round the room, which are under control by the means of slides: these can be so managed as not to cause an uncomfortable draught.

"When," remarks Mr. Lloyd, "we consider the number of lives annually sacrificed by *attendance on the sick bed*, not only in contagious diseases, but also in numerous others, where continued occupation of one room necessarily so contaminates the air as to make it poisonous to delicate organisations, worn with fasting, watching, and anxiety, we must be impressed with the immense importance of mitigating, if we cannot subdue so serious a drawback on human health and happiness. Hospitals, barracks, and other such rooms require peculiar attention to the ventilating arrangements, or they become nurseries of disease."

Dr. Ure states that "*an apartment may be conve-*

niently disinfected by placing on a shelf or support near the ceiling a small basin or pipkin containing chloride of lime, having set over it a glass or earthenware funnel with muriatic acid diluted with about its weight of water, the beak of the funnel being partially closed with a cork, so that the acid may drop slowly down on the chloride. Eight ounces of good chloride thus treated, with ten ounces of muriatic acid, will suffice to fumigate and sweeten the air of a common-sized chamber.

After these statements we cannot be surprised to hear of the accidents which frequently follow a want of precaution in closing out the fresh air.

It is stated that, at a Christmas meeting in the Highlands, thirty-six persons danced the whole night in a small room with a low ceiling, keeping the windows and doors shut. The atmosphere of the room was noxious beyond description, and the effect was that seven of the party were soon after seized with typhus fever, of which two died.

In the First Report of the Health of Towns Commission it is stated that eighty journeymen tailors worked in one room, "close together, nearly knee to knee," in a room so close that "new hands" fainted away—the men were in a continual perspiration, and large tallow candles "melted and fell over" from the suffocating heat. "Those not accustomed to the place generally lost appetite, and had recourse to drink as a stimulant, gin being taken instead of food, while a considerable portion of the working hours of every day was lost by the neglect of the ventilation of the place of work."

It has been given in evidence that "the closer the ventilation of the places of work, the worse are the habits of the men working in them."

CHAPTER IX.

SIGHT AND HEARING.

"These mirrors take into their little space
The forms of moon, and sun, and every star,
Of everybody, and of every place,
Which, with the wide world's arms embraced are;
Yet their best objects and their noblest use
Hereafter, in another world, will be
When God in them shall heavenly light infuse,
That face to face they may their Maker see.
Here are the guides which do the body lead,
Which else would stumble in eternal night;
Here, in this world, they do most knowledge read,
And are the casements which admit most light."

"This is the slowest, yet the daintiest sense,
For even the ears of such as have no skill
Perceive a discord and conceive offence,
And, knowing not what 's good, yet find the ill."
SIR JOHN DAVIES.

SIGHT.

It is well known that nothing more certainly impairs the sense of vision than debauchery and excess of every kind. Those, therefore, who would preserve their sight unimpaired must exercise temperance in all things.

A long continuance in dark rooms, or frequent and protracted exposure to a blaze of light, is highly injurious. As a general rule, the eye should never be permitted to dwell on brilliant or glaring objects for any length of time. Hence in our apartments only a

moderate degree of light should be admitted; and it would be of considerable advantage, particularly to those whose eyes are already weak, if some shade of green were adopted for the curtains and walls.

Reading or writing in the dusk of the evening, or by candle-light, is very prejudicial. The frivolous attention to a quarter of an hour at the decline of day has deprived numbers of the perfect and comfortable use of their eyes for many years. The mischief is effected imperceptibly—the consequences are often irreparable.

There is nothing which preserves the sight longer than always using in reading, writing, sewing, and every other occupation in which the eyes are constantly exercised, that *moderate degree of light* which is best suited to them: too little strains them, too great a quantity dazzles and confounds them. The eyes are less affected, however, by a deficiency of light than by an excess of it. The former seldom does much if any harm, unless the eyes are strained by efforts to view objects for which the degree of light is inadequate; but too great a quantity has, by its own power, destroyed the sight.

Many persons have lost their sight by living in *rooms with white walls*, or by having their windows so situated as to reflect strongly the light of the sun. The light admitted into a room may be so proportioned by shutters, Venetian blinds, or curtains, that it may be perfectly sufficient for use, but neither stronger nor weaker than is necessary. It may be proper to add, that being near-sighted partly proceeds from the injudicious custom of confining children, during the first years of their lives, almost constantly within doors. They are thus rendered incapable of forming a focus properly for distant objects. Sailors, from looking at remote objects, become long-sighted, and with difficulty can accommodate the eye to objects nearly situated. Students, watchmakers, and others, who are in the habit of viewing things close to them, on the other hand, become near-sighted; and those who live much

in small chambers are subject to the same defect. A greater number of women than of men in proportion are near-sighted, from their being less abroad.

The long-sighted should accustom themselves to read with rather less light, and with the book somewhat nearer to the eye than they ordinarily desire, while those that are short-sighted should, on the contrary, accustom themselves to read with the book as far off as possible. By these means both may improve and strengthen their vision, whereas a contrary course will increase its natural imperfections.

Bathing the eyes daily in cold or tepid water tends to preserve the integrity of their functions, provided, however, the individual does not, immediately after such bathing, enter a warm room, or unnecessarily exert his sight.

A large piece of sponge, containing a good deal of water, so that it may not too soon become warm, is far preferable, in these partial bathings, to the warm, smooth hand or towel. The sponge should be frequently dipped in cold water, and occasionally allowed to lie for a few moments on the eye, with the head bent backwards, while the eye is gently moved and a little opened during the operation. Or dip the corner of a towel doubled down in hot water, by the application of which for about a dozen times any slight inflammation of the eyes may be removed. If that is not sufficient the eyes, with the lids closed, ought to be steamed by boiling water in a jug with a handle, so that the steam may at pleasure be applied with increased or diminished force. Even violent inflammations are lessened by this means.

The eyes should not be too much exerted immediately after rising in the morning. Hence it is advisable to remove the candle to some distance, and under shade, in the long winter mornings, till the eye is gradually accustomed to it. For the same reason the window shutters ought not to be opened suddenly in very bright daylight. This immediate change from darkness to

the clearest light occasions sensible pain even to the strongest eyes.

Writing fatigues the eyes less than reading, for the letters we form on the paper are previously imprinted on the imagination, and consequently require less acuteness of sight than the series of letters and words we read.

The most suitable apartment for occupation by those that have weak sight is one forming an irregular square, with large windows to the east, in which there is a uniformly divided light, or still better by means of skylights. Garret windows afford a bad light, it being generally introduced, as it were, by a funnel, and illuminating only one part of the room, whilst the rest remains dark.

A sitting-room is best adapted to preserve the eyes, the walls of which are *pale green*, without paintings.

To sit with one's back to the window occasions a shade which forms a disagreeable contrast to the surrounding light. The writing desk, therefore, ought to be placed so that the east window ought to be on the left hand, and that the right hand may throw no shade on the paper, and not too near a corner of the room, as this generally receives an unfavourable light. A space sufficiently broad between two windows is a still more convenient position for a desk; but we should not sit too near the wall, a custom which is excessively hurtful to the eyes. *The oblique position of the desk is the most proper*, for it presents to us the writing materials in that position in which we are habituated to place a book when we hold it in our hand, and from which the rays of light diverge more gradually than from a horizontal table. It is less hurtful to the breast, to the abdomen, and also to the eyes, to use a desk of this form, and to write standing rather than sitting, provided that the height of the desk be proportionate to the length of the body, that it be firm, and that both arms rest upon it, without being fatigued by raising them too high. In standing before a desk we have

additional advantage, that there is less occasion to direct the eyes upwards than in sitting.

The foundation of bad eyes is frequently laid in the first weeks and months of infancy, by incautiously *exposing the eyes to glaring light*, and producing inflammation, and all its various train of specks, clouds, cataracts, and total blindness. If you carry an infant into the sunshine, or into bright light, it instantly cries, from the irritation of the light on its tender organs; but this tells nothing to the ignorant nurse, who has her nostrums in readiness whenever the poor baby's eyes are red, swollen, and oozing with humour. The most injurious custom, also, of holding a candle or a mirror near the infant to see it take notice, as it is called, very often is the cause of severe inflammation and loss of sight, and if the child escape this it most probably has its eyes strained into a most incurable squint. In more advanced childhood the eyes should be cautiously habituated to look at distant objects, in order to avoid the defect of near-sightedness, now so common among the upper and middle ranks, from the absurd practice of confining children so much to nurseries and school-rooms, and preventing their getting out into open day.

As much care is required in protecting the *sight of the young at school* as at home. Many a fine girl has had her sight most cruelly sacrificed by being compelled to strain her eyes for many hours daily in poring over music.

The eyes in youth must never be fatigued until the body acquires strength; for, if children are put to close study when the body is weak, the sight is in great danger of being destroyed, and that before the parents are aware of the danger. It should be remembered that economy of the sight in infancy and youth is the best guarantee of its strength in manhood and old age. Even in manhood and middle life we should look forward to the period when the lustre of the eye will be dimmed with years, and endeavour to spare the sight from idle or unnecessary fatigue, or, if this has

at any time happened, to take means, without delay, to restore it to vigour. Of all other means of refreshing the fatigued eye sleep is the most powerful; and when you have been exposed overnight to the glare of gas, or the sparkling of gilded or crystal chandeliers, while, at the same time, you were robbed of several hours of your accustomed sleep, let no urgency of business (if you value your eyesight) tempt you to get out of bed till your eyes feel refreshed; and if any stiffness or smarting remain, lave them and the forehead with the coldest *soft* water you can procure.

Out of 4,984 patients to whom M. Boissonneau applied glass eyes during a period of nine years the ages of 2,416 persons varied from 16 to 25.

The eye was lost from the following causes:—

Acute ophthalmia	- - -	917
Constitutional disease	- - -	221
Gun-shot wounds while shooting	-	127
Explosions in mines and chemical laboratories	- - - - - }	50
Various mechanical causes in manufacture, &c.	- - - - - }	1,101
		<hr/> 2,416 <hr/>

Diseases of the eyes are common to most classes of workmen. The following are exposed to injuries from chips, splinters, dust, grit, or fluff, viz.:—engineers, masons, stone-cutters, stone-breakers, bricklayers, soda-water bottlers, turners, fitters, hammermen and smiths, cutlers, railway guards, rock-blasters and quarry-men, millers, chimney-sweepers, workers in cotton, flax-dressers, feather-cleaners, drug-grinders (especially in grinding blistering flies), and shoemakers (from breaking of the awl). The remedies proposed for this class of accidents are, for those liable to blows from large portions of hard substances, such as stone-breakers, &c., *coarse metal netting as eye-guards*; and

for those exposed to the finer dust, *crape spectacles*, while, at the same time, free ventilation of the apartments they work in would relieve much of their inconvenience.

Accidents from the chemical nature of the substances, which, in the shape of solid particles, get under the eyelids, happen to bricklayers, workers in lime, workers in potash, &c. No special preventive seems to be here pointed out, beyond the placing within reach of the workmen the ready means of immediately cleansing the parts with pure water.

Furnace men, gilders, and bookbinders suffer from *excess of light*; others, such as dressmakers, tailors, sempstresses, cobblers, and, in fact, all who, having to direct the needle to a definite point, are unable to command the requisite amount of direct illumination. *The ill effects of deficiency of light* are much aggravated by working long on the same material or colour. Mr. Cousins suggests that needlewomen, embroiderers, and lacemakers should work in rooms hung with green, and having green blinds and curtains to the windows. This plan has been adopted by the Chinese, whose books of patterns are frequently called *books of the lady of the green window*. The same gentleman observes that needlewomen would find great advantage by changing *the colour of their work* as frequently as possible, variation of stimulus being necessary to preserve the tone and health of any organ of sense, as prolonged application of the same stimulus is exhausting. Among dressmakers the custom prevails of making up their *white* and *coloured* materials during the *day*, and reserving all *black* work for the *evening*. They allege, as a reason for this, that white fabrics are apt to get soiled if exposed to the smoke of gas. It is certain, however, that the strain on the eyes from working on black by artificial light is much more severe than from doing such work by daylight.

When artificial light is used it should be above the level of the face, so as to allow, as in nature, the brow

and lashes and iris to shelter the pupil, and thereby the expansion of the optic nerve, from the *direct* rays.

The flickering of light exercises a pernicious effect upon the sight, and the simple remedy for this is the employment of glass chimneys. It seems improper that an equal quantity of artificial light should fall on the work and on the eyes of the workman. This evil is easily obviated by *shades to the light*, which defend the eyes, and throw the illumination on the required object. The shades should be made of white or light-coloured material, so as to reflect as much light as possible. Ground glass between the light and the worker is injurious, by intercepting and diffusing the illumination, instead of directing it on to the object.

Bad ventilation, constrained postures, over-indulgence in spirituous liquors, the fumes of tobacco, and all other violations of healthy habits, are injurious to the eyes, at the same time as to the rest of the body, and aggravate the bad effects of the above-named industrial occupations.

Those who are concerned with very *shining materials*, as metals, looking-glasses, &c., injure the sight. It is important to interpose between the artificial light and the object worked at, a piece of stretched canvas, an oiled paper, a gauge, or some other screen which intercepts the direct luminous rays.

"*Literary men*," observes Dr. Tilt in his "*Elements of Health*," "*instead of working at night*, should, if possible, do so very early in the morning. The light should not fall full upon the paper, or upon the eyes of the reader or writer, as he sits at work, but to the left side of him; for then, as he writes, the eyes are not troubled with the shadow of the pen and of the fingers upon the paper.

"Writing being much less trying to the eyes than reading, the intellectual labourer should make a judicious blending of the two exercises, and, when the eyes feel fatigued, bathing them with cold water will both strengthen and relieve them. But if it be absolutely necessary for the literary man to work at night, to do

so without injury to his sight, the constitution should be in a good state of health: *work must never be begun until two hours have elapsed after a full meal*, and as with the natural, so with the artificial light, it should not fall on the eyes, but be placed on the left side.

"*With respect to the kind of light which is least injurious to the eyes*, it is generally admitted that lamps should not be adopted, because, without a shade, they fatigue the sight by their brilliancy, and, when shaded, they do not sufficiently illuminate the paper. Gas is equally prejudicial, for, when suspended overhead, it does not well light the paper, and, if shaded with ground glass, it is very trying to the eyes. *The best light is that given by wax or composition candles*, one being placed quite to the left, and another in front and to the left of the desk. An even light is thus diffused, which is the least prejudicial to the eyes.

"Those who write much will find their eyes far less fatigued by writing with *blue ink on bluish paper* than by using black ink and white paper. In reading, also, it is a relief to let the eyes turn from the book to some soft and harmoniously - coloured surface. Brilliant colours, therefore, in papers or paint, or anything that may fatigue the sight by the painful entanglement of the pattern, should not be chosen for a room devoted to study. •

"From over-study the literary man may feel annoyed at seeing a little cloud pass between one or both of his eyes and the object looked at. The cloud seems to pass slowly along, to disappear, and then, after a few seconds, comes another, and so the slow procession may troop on for hours, and the more he gazes and is alarmed, the more they come, showing that this peculiarity is functional, rather than dependent on any structural change in the eyes. The frequency of the appearance of these *muscæ volitantes* shows an *irritable condition of the eyes*, and is a warning not to abuse the sight.

"When, however, a fixed object is seen, it indicates a

loss of visual sensibility in one portion of the retina, which is most likely to extend by degrees to the whole, thus causing a form of blindness called *amaurosis*."

The following rules for the preservation of sight will be found useful:—1. Never sit for any length of time in absolute gloom or exposed to a blaze of light, and then remove to an opposite extreme. 2. Avoid reading a very small print. 3. Never read by twilight nor by fire-light, nor, if the eyes are disordered, by candle-light. 4. Do not permit the eye to dwell on glaring objects, particularly on first waking in the morning. 5. Long-sighted persons should accustom themselves to read with rather less light and somewhat nearer to the eye than is naturally agreeable, while the short-sighted should habituate themselves to read with the book as far off as possible. 6. Do not wear other spectacles than your own, to which your eyes have accommodated themselves.

Spectacles may be considered necessary, 1. When we are obliged to remove small objects to an increased distance from the eye (the general indication of a decay of sight) to see them distinctly. 2. When we find it necessary to have more light than formerly, as, for instance, when we find ourselves placing the candle between the eye and the object. 3. When, on looking at, and attentively considering a near object, it becomes confused, and appears to have a kind of mist before it. 4. When the letters of a book run into one another, and become double and treble. 5. When the eyes are so fatigued by a little exercise that we are obliged to shut them from time to time, and to relieve them by looking at different objects. When any of these things come to pass it will be prudent, as well as necessary, to confess honestly that our eyes, the thermometer of age, require assistance from art, and, without apology, to get the optician to suit a pair of spectacles to the proper focus.

Single eye glasses should never be used, although fashion here, as in many other absurd instances, plays fantastic tricks, and every young man of any *prétention*

does not find his toilet complete without these dangerous toys. They imperfectly fulfil the object and injure the eye.

To get foreign bodies out of the eye is an operation requiring some tact and readiness in the use of the fingers, to say nothing of good eyesight, for it is astonishing how almost microscopic a particle may be that causes great pain and suffering. Frequently when the substance is under the upper lid, where, indeed, it generally is, by taking hold of the lashes, and drawing the upper over the under one, the particle will attach itself to the lashes of the latter. When this does not succeed the following method may be adopted:—Take a stout horsehair, bend it double, and over the loop thus made stretch smoothly the corner of a silk handkerchief. The flat oval instrument thus made, after being dipped in water, is passed in at one corner of the eye, between the lid and the ball, and carried gently over the latter to the other corner, when it is drawn out with, it may be hoped, the offending particle attached to it. Should this not succeed, however, the lid must be turned wrong side out, so as to be thoroughly examined. This requires some sleight of hand, but it is generally readily acquired. With one hand hold a bodkin, or anything of that size, upon the lid parallel with the edge, and with the other hand seize the lashes, and by them draw the lid out from the ball, and carry its edge upwards over the bodkin. This exposes the inner surface of the lid, so that it can be searched for the offending substance, which may be removed with the corner of a handkerchief. Sometimes persons are under the impression that a foreign body still remains in the eye when it has actually been removed. The cause of this is, that the vessels have been enlarged by the irritation caused by the accident. Generally, bathing the eye in cold water will remove the cause and the sensation; but should it last beyond twenty-four hours there is reason to suppose that the damage may be greater, and more decisive measures should be taken:

a physician should be consulted. Do not be deluded by the impression that it is only a cold, for this may cause inflammation and the loss of the eye; and, above all, do not, in such cases, use a remedy because it has cured the eye of another person. It may have done so, but the eye so successfully treated may not have been in the same condition as your own.

THE EAR.

For the habitual care of the ear the instructions are very simple. The outer ear should be well cleansed daily, and the passage wiped out as far as the tip of the little finger, covered with a soft wet rag, can reach, but no further. The practice that some have of inserting still deeper the point of an ear-pick or some other instrument, is, to say the least, perfectly unnecessary, and may do injury to the deep-seated structures, if not irreparable injury to the delicate auditory apparatus. *If the wax collects* in it so as to obstruct the passage, as it is sometimes liable to do, from an increased secretion of that substance, produced by cold, it should be removed by syringing the ear out with warm water, having the night before dropped two or three drops of almond oil into it to commence the softening process. The operation must be continued for some little time, as the wax has first to be considerably softened before it can be loosened and carried out by the current.

The common practice of stuffing cotton wool into the ear upon every trifling ailment should be avoided, for it is apt to bring on a delicate and irritable state of the ear, and is, in reality, very seldom necessary. When it is, lambs' wool should be used instead of cotton, being less likely to leave fibres adhering to the lining of the passage, and thus clog the ear and embarrass the hearing.

Deaf persons should avoid the too frequent use of ear-trumpets. They are very fatiguing to the auditory nerve, and are liable to increase the defect they are intended to temporarily remedy. Persons conversing with any one using a trumpet ought to be careful not to speak too loud, but to ascertain the elevation of voice which will suffice to make them heard, and not go beyond it; for every excess of this sort expends, as it were, a portion of the auditory sensibility of the other, too precious to be used up unnecessarily.

It is important to know that, in conversing with deaf persons, their ability to hear does not depend so much on the loudness with which a person speaks to them as upon the clearness and distinctness, and also upon the proper musical pitch adopted in speaking to them. Attending to these points, a conversation may often be carried on with one hard of hearing, at very little expenditure of breath and effort; while, if they are disregarded, the voice may have to be exerted greatly, and yet very unsatisfactorily. Indeed, the power of the human voice, even in its soft tones, seems very little appreciated. It is told of the great Chatham that he could make his lowest whisper heard in every part of the House of Commons; and of Whitefield, that the words of a sermon preached by him in the open air were distinctly heard at the distance of half a mile.

It is curious to notice that persons who wear wigs hear more distinctly without than with them. Those who have been trephined have been found to hear distinctly any sound directed upon the cicatrix, even when both ears have been plugged.

Dr. Joseph Williams, in his excellent treatise on the "Anatomy, Physiology, and Pathology of the Ear," has the following observations:—"None but a regularly educated practitioner should be intrusted with the treatment of the various diseases of the ear, inasmuch as they are not always local, but are frequently symptomatic of,

or concomitant with, some of the most serious maladies, demanding the most scientific and skilful treatment. No plan can be more pernicious than that usually adopted by mothers of *tucking in* the child's ears, because they should not grow out. In this way the ears become flat, and thus are not so well adapted for collecting sound; but the chief mischief is that the auricle loses its proper degree of tension, occasioning sometimes partial deafness.

"*Otorrhea*, or, as it may be literally translated, a flowing from the ear, is sometimes found connected with disease of the spinal column, and it is also sometimes found in connection with nasal polypus. It may occur at all ages, and may continue for an unlimited time, even fifteen, twenty, or thirty years. It is better not to interfere with this discharge from the ear: if suddenly checked in children it frequently causes skin diseases, swelled glands in the neck, inflamed eyes, and sometimes brain affections. In adults, if discharge from the ear, particularly if from the internal ear, be from any circumstance *suddenly* stopped, head symptoms immediately commence.

"*Astringents*, which ought rarely to be used, are highly dangerous when there is pain in the *head*, and, if these injections are persevered in, the brain suffers, and death generally follows. This renders the *quack specifics* so dangerous, as they are either composed of astringents, stimulants, or sedatives, each and all being decidedly dangerous when introduced into the tympanum, especially under such circumstances.

"*In discharges from the ear* one can never be certain what disorganisation has taken place in the internal ear, and, therefore, no one is warranted in injecting into it such dangerous agents.

"In adults, where this discharge has existed for many years, there can be but little chance of effecting a cure, and the principal thing to guard against is the *extension* of the ill.

"The patient should always sleep on the affected side,

to allow the matter, by its gravity, to drain off from the ear, and the ear should be syringed with tepid water night and morning. In these cases oil should never be introduced, as it speedily decomposes. Never, also, drop into the ear eau de Cologne, ether, &c., as, although it may be sometimes done with impunity, yet it has been productive of the greatest mischief. Some persons who frequently suffer from earache contract the habit of dropping in laudanum: this is decidedly injurious, and is not unattended by danger. In such cases," adds Dr. Williams, "I should recommend the trial of hyoscyamus and marsh-mallow leaves, equal parts, to be applied hot; and if this cannot be procured, a hot bread-and-water poultice, with laudanum dropped upon it.

"*If the pain is dependent upon carious teeth* the tooth, or *stumps* of teeth, must be extracted; and if the pain be suspected to originate in the jaw, the mouth should be examined and the teeth struck, and, should one in particular give pain, it should be extracted.

"*If of an intermittent character*, improving the general health, and administering bark, quinine, and, in some cases, arsenic, will be found serviceable:

"*Hardened wax* sometimes entirely fills the external meatus, and very often in old persons small portions of wax remain at the upper or tympanal extremity of the *meatus externus*, acting in a great measure as extraneous bodies, and when in very large quantity occasioning pain, even during the movements of the lower jaw. This is a frequent cause of deafness.

"*Persons who bathe sometimes complain of dullness of hearing*, with ringing, buzzing noise in the ear. This is frequently dependent upon a layer of wax, while soft, having been deposited upon the *membrana tympani*, and subsequently hardening. Syringing the ears two or three times with warm water, or with soap and water, will remove this unpleasant sensation.

"*For injecting the ear* care should be taken in choosing the *syringe*, which should not be small, as, although no

force should be used, yet moderate power is frequently necessary. A syringe capable of containing two fluid ounces will be found the most serviceable for washing out wax from the ear. It is important to have a short nozzle, as the body of the syringe then forms a guard to prevent its entering too far into the ear."

CHAPTER X.

THE TEETH.—THE VOICE.

“Those pearly rows with strength and beauty dight,
Warriors in hard and well-sustained fight,
The stomach's friend, its sure and firm defender,
But powerless when vice is the offender.”

“Sacred interpreter of human thought,
How few respect or use thee as they ought!
But all shall give account of every wrong,
Who dare dishonour or defile the tongue;
Who prostitute it in the cause of vice,
Or sell their glory at the market price!”

COWPER.

The care of the teeth is a duty of paramount importance. A well-proportioned and complete set of teeth is not only a great feature in our personal appearance, and essential to a distinct pronunciation, but is also necessary for the mastication of the food, upon which depends, in a great measure, its proper digestion, and, as a consequence, the due nourishment of the body.*

* “Hard and resisting,” observes Dr. Coombe, “as the teeth appear, they are, nevertheless, endowed with the same vital properties as other parts, and the root of each is perforated longitudinally by a small canal,

* Lord Bacon has paid particular attention to the subject of the teeth, and the renewal of them. The points to be considered regarding them, he observes, are, 1. The preserving of them. 2. The keeping of them white. 3. The drawing of them with least pain. 4. The staying and easing of the toothache. 5. The binding in of artificial teeth. 6. That great one of restoring teeth in old age.

through which the blood-vessels and nerve are admitted to its internal structure. From these blood-vessels the tooth derives its nourishment when growing, but afterwards they almost entirely disappear. From its nerve the tooth derives that sensibility which makes us instantly aware of the contact of bodies either too hot or too cold."

To prevent the teeth from being worn down by friction their visible part, or crown, is covered with a very hard, white, ivory-looking substance, called enamel, into which neither blood-vessels nor nerves have been observed to penetrate.

An obvious advantage attending the vitality of the teeth is, that it enables them to accommodate themselves to the growth of the jaw and the general system at the different periods of life. The teeth being living parts, and at the same time endowed with a mechanical function, are liable to injury in both capacities. Being composed chiefly of earthy matter, such as phosphate and carbonate of lime, the contact of strong acids decomposes or destroys their substance, and leads to decay.

A want of cleanliness and care in the treatment of our teeth occasions an accumulation of tartar. No time should be lost in having this removed by a dentist. A more serious evil is decay, which invariably commences at those points where foreign bodies, whether the secretions of the mouth or food, are apt to accumulate; namely, between the teeth, or in the deep depressions in the grinding surface of the molars, which are prone to become impacted with food, and very difficult to free from it. The process seems to be that the food, or other foreign matter deposited, undergoes a fermentation, and softens the enamel. The softened portion is soon removed, and another surface undergoes a like change, until the substance of the tooth is laid bare, when the process becomes more rapid, both from the material being more readily acted upon, and a larger quantity of the agent being at work.

Another obvious effect of a want of cleanliness of the teeth is the *foulness of breath* caused by the putridity of morsels of food collecting between them, enough of itself, surely, to induce care on this point; but should it not be, the fact may be stated, that if we do not clean our teeth ourselves, scavengers are provided to remedy, as far as possible, the evil effects of our carelessness. These are animalcules, which exist in great numbers about the roots of foul teeth, the number being in direct ratio with the untidiness of the person's mouth. The only way to get rid of these is to preserve, in every possible way, the cleanliness of the teeth.

In sleeping care should be taken to keep the mouth *closed*, for, besides other inconveniences attending a contrary practice, the teeth are apt to be injured by the air continually passing through them.

The chief cause of a caries in the teeth is, undoubtedly, external, but it may be sometimes produced by an internal cause. While, on the one hand, exposure to currents of cold air are stated to act injuriously upon the teeth, the medical practitioners of Germany and the north appeal to the opposite extreme, of the habitual use of hot aliments, as a still more general and mischievous source of the same evil. According to a Swedish writer "man is the only animal accustomed to hot foods, and almost the only animal affected with carious teeth." The same author condemns, in an especial manner, the custom of drinking hot tea and coffee. There can be no question that the extremes of heat and cold must be greatly, perhaps equally, injurious to the health.

To the abuse of hot beverages as a cause of caries M. de la Salle adds the abuse or the excessive employment of *sugar*, and imagines that these are the two principal means by which teeth are rendered black in their enamel, and carious in their substance.

If sugar act at all it must be by means of the principle of acidity which is contained in it, and consequently in proportion to the degree of affinity which this prin-

ciple bears to the earthy matter or calcareous basis of the teeth and their enamel, beyond that of the acids which enter into their natural composition. And the same may be observed in respect to any other acid whatever.

Injurious effects on the teeth arise also from intemperate habits, unwholesome aliments, grinding very hard substances, breathing an impure and confined air, the imprudent use of mercury and strong purgative medicines, smoking cigars or pipes, improper tooth-powders, &c.

Fermented liquors are injurious to the teeth in proportion to the quantity and quality of the liquor which is used. Persons who are in the daily practice of drinking a quantity of wine are rendered more subject to the accumulation of tartar on the teeth. When people have habituated themselves to the use of spirituous liquors the injurious effects upon the teeth are very apparent. The teeth acquire a very stained and foul appearance; the gums, being more or less inflamed, are covered with a slimy mucus, and are often liable to bleed; the breath, also, becomes very offensive; and, as the regular passing of the spirituous liquors over the tender skin of the mouth creates a constant degree of inflammation, the heat of the mouth is greatly increased. This state of the mouth is also kept up by the increased heat of the stomach, and when, by the debilitating effects of the spirits upon that organ, indigestion is produced, the teeth very rapidly fall into a state of decay; they are acted upon constantly in the same manner as in the course of a fever, when the heat of the constitution is greatly increased.

Toothache, on which we are now about to remark, becomes chronic by the dissipation and reckless carelessness of the persons we have described.

The poet's remark—

“ There was never yet philosopher
That could endure the toothache patiently,”

is most truthful; yet the complaint being so common is, perhaps, the reason why so few sympathise with the patient. The origin of this pain, besides being influenced by the causes we have mentioned, may be various; it may arise from decay, when, of course, the dentist only can afford permanent relief. Indeed, this science has been so successfully pursued of late by many eminent practitioners, that the sufferer from toothache may readily find the means of assuaging pain.

One of the best local applications for toothache is warm salt and water. It should be made as strong as possible, a little taken into the mouth, and held for some minutes on and around the painful tooth, when it may be rejected, and a little more taken into the mouth: two or three of such applications generally succeed in affording relief. The mastication of pungent, aromatic, and stimulating plants will sometimes succeed in relieving the pain, such as ginger, horse-radish, common hartwort, or pellitory root.

It is necessary, however, that during the treatment due care and caution should be observed. The strictest attention ought to be paid to diet and regimen. Night air, exposure to dews, or to easterly winds, ought to be avoided; and, when the attack is removed, cold water poured over the head will sometimes prevent a recurrence. Toothache is frequently occasioned by the absurd attempts made to improve their complexion by the votaries of fashion. The paints and lotions employed for this purpose often contain preparations of lead, mercury, zinc, or bismuth, the pernicious effects of which frequently manifest themselves in the production of severe pains in the jaws and teeth, or in the complete destruction of the latter.

When the digestion is healthy and vigorous toothache is rarely experienced, except it be in consequence of a chill; but even then severe and continued pain is seldom felt if the stomach has been previously healthy.

Tooth-brushes ought to be of a medium stiffness,

sufficiently hard to do their work, but not enough to unpleasantly scratch the gums. In using the brush the teeth should not only be rubbed crosswise, but also up and down, so that the bristles may penetrate the interstices, and cleanse them out. For a fluid to use with the brush in ordinary cases, water, with a little soap—passing the brush once or twice over a cake of Windsor soap—is all that is sufficient. If this, used freely twice a day, does not keep the mouth in good condition, it must be on account of some peculiar state of the secretions, or of the stomach itself. Sometimes there are acids, in which case a little super-carbonate of soda may be added to the water. It does happen occasionally that the deposits from the secretions are very profuse, and adhere too readily to the teeth to be removed by the bristles simply: in such cases *tooth-powder* is necessary. For this numerous prescriptions are given, such as chalk, charcoal, powdered Peruvian bark, gum, myrrh, &c. *Chalk* is apt to have gritty impurities mixed with it, liable to scratch the teeth. They may be removed by grinding it with water in a mortar, permitting the heavier parts to fall to the bottom, drawing off the turbid water, and using what settles from it. This is the prepared chalk sold by apothecaries. It constitutes the basis of most of the tooth-powders sold, colouring matter, generally pink, and some perfume, being added to make it more acceptable, but, of course, not increasing its excellence as a teeth-cleanser. Against *charcoal* the objection has been urged that it insinuates itself between the gum and tooth, and affects the latter. When very finely powdered it is a good polisher, and cannot injuriously scratch the teeth, while, from its known antiseptic properties—correcting putrefaction and purifying tainted substances—it would, but for the above objection, be admirably suited for a tooth-powder.

When a *soft and spongy condition of the gums* demands something to render them harder and firmer the following preparation will be found useful:—Equal

parts of the tincture of Peruvian bark and of the tincture of myrrh, diluted with no more water than is necessary to prevent the mouth from smarting. It should be used immediately after cleaning the teeth.

The *toothpick* is an instrument scarcely if any less important than the tooth-brush, for it is very desirable that, after each meal, as many as possible of the pieces of food which remain between the teeth should be removed. It should be of such material, and so used, as not to scratch the teeth or injure the gums. Quill, wood, ivory, and horn are all good to make them of. If the teeth are very close together wood of a thickness to be efficient in its work cannot be inserted, and in such cases the other substances will suit better. *Metal should never be used.* In picking the teeth be careful not to irritate the gums, and rinse the mouth thoroughly with cold water.

The action of sugar upon the teeth to which we have before alluded has given rise to much discussion. M. Larez has arrived at the following conclusions:—
1. Refined sugar, from either cane or beet, is injurious to healthy teeth, either by immediate contact with these organs, or by the gas developed while it is in the stomach. 2. If a tooth be macerated in a saturated solution of sugar it is so much altered in its chemical composition that it becomes gelatinous, and its enamel opaque, spongy, and easily broken. 3. This modification is due, not to free acid, but to a tendency of sugar to combine with the calcareous basis of the tooth.

In an American journal, the *Dental News Letter*, we find the following observations, which deserve attention:—"We believe that *one of the great causes of the deterioration of the teeth of the present age is the use of soft food.* Every article of diet is reduced by cooking to a pulp, and is merely mumbled in the mouth to form it into a proper bolus for deglutition, or is actually swallowed as a liquid. The mastication of solid food is essential to the preservation of the teeth. We fre-

quently see the teeth of children coated over with a kind of white paste, and the enamel softening, as if they were being macerated in a dilute acid, and in a short time fall a prey to decay, and are prematurely lost. From the appearance of the teeth they had bolted their food, and not masticated it. The dairymen know that, if milch cows are fed upon slop, their teeth will blacken, loosen, and finally fall out, or will be disabled of feeding on hay or grass, and consequently they will not purchase them with a view to keeping them in that way. We frequently see all the teeth in this condition but two or three, which have done the mastication, and these present a polished or healthy appearance, while all the rest are going to destruction. Several years ago a gentleman who had a good set of teeth called upon us to have some operation done. We told him that if he did not endeavour to use both sides of the mouth in chewing he would lose half his teeth. He was startled to find that we could tell which side of his mouth was most used. One side was clean and healthy, while the other was coated with tartar, gums spongy, and the teeth decaying. He said that this reminded him of, and explained a remark made by the late Stephen Gerard, 'that his teeth were like some persons—if he gave them nothing to do they got into loose ways; but if he gave them plenty to do they got tight again.' While at home his teeth became injured by eating soft food; but when he went to sea and used harder food they became healthy."

Mr. Nicholles observes that the principal malformations produced by irregular teeth, and causing a *disagreeable change of the countenance*, are the rabbit mouth and the prominent chin. The first is caused by the projection of the front teeth of the upper jaw, frequently accompanied by individual irregularity in their position. The second is caused by the projection of the front teeth of the under jaw, the incisors of the upper jaw falling within those of the under, instead of ranging beyond them, and, in proportion as the

teeth advance, the deformity becomes greater. Yet these defects may be prevented by timely attention; for teeth which are prominent or irregular can always, by compression at an early period, be brought into proper arrangement. If this be neglected the fault is not in the want of remedies, but in the deficient care and skill of those whose duty it is to apply them.

Lavater, in his beautiful, but fanciful theory of physiognomy, *deduces the human character from the teeth*, their form, colour, and arrangement being, according to his system, sufficient indications of the mind. This, in the extent to which he carries the doctrine, is absurd, though it is beyond doubt that *the expression of the face is powerfully affected by the good or bad arrangement and constitution of these organs*. In the absence of the proper number of teeth the jaw contracts, and assumes the appearance of old age, the cheeks hang down, and the face grows morose and wrinkled; if the upper teeth project too much the mouth becomes deformed; if they fall within the circle of the lower jaw the chin and nose approximate; if they be black and irregular they give an expression to the face of so disagreeable a cast that, though each feature be perfect in itself, the expression of the whole combined is even painfully ugly.

Artificial teeth are of various kinds, and of these the *mineral*, as they are called, are the most objectionable. Human teeth fixed in gold, or in the tusk of the hippopotamus, or in both combined, are the *best substitutes for the natural organs*. There is an ill-founded impression on the minds of some persons against the use of them, but they never can be prejudicial except by the neglect or ignorance of the dentist. Danger may, and no doubt does, frequently arise from their being introduced without previous preparation, for they ought to be macerated with the greatest care till all the animal matter about them is decomposed, and nothing remains save the pure osseous substance, with its beautiful covering of enamel. In this state it is

utterly impossible for them to do any mischief, though, if these precautions be neglected, the use of them will always be injurious, and sometimes be attended with results even more serious.

It is impossible to lay down any precise rule as to the mode of fixing artificial teeth; this must depend upon circumstances, which can only be understood and appreciated by the dentist.

THE VOICE.

"It is probable," observes Mr. Nicholles, "judging from analogy, that every organ in the human frame is calculated and required to perform a twofold function, though, in the present state of our anatomical knowledge, it would be difficult to substantiate this theory in all cases. Thus the lungs are equally essential to the formation of blood and to respiration; the liver, while it is the emunctory of the venous system, as the kidneys are of the arterial, is also employed in the secretion of the bile; and many nerves are not only capable of distinct sensation, each according to its assigned office, but also of volition. But yet more palpable is the double function of the teeth, which, it is scarcely necessary to observe, are alike essential to speech and mastication.

"The utterance of simple vocalised sound, and its subsequent division into notes or letters, are two very different things in themselves, and proceed also from different parts of the animal economy: the one is, properly speaking, *voice*, and the other is *speech*. The dog, the horse, the ass, and other animals, have voice, though the phrase dumbness is, in common parlance, inaccurately applied to them.

"The *trachea* forms the anterior part of the throat. The *larynx* is a short cylindrical canal at the head of

the trachea. The *glottis* is a small oval chink between two semicircular membranes, extended horizontally from the entering side of the larynx. The *chordæ vocales*, or vocal chords, are its lower ligaments. The *pharynx* embraces the last and highest portion.

“When the air is expelled from the lungs by the process of volition it passes into the trachea, and thence into the glottis, which, being very narrow in comparison with the trachea, the air, in passing through it, acquires a considerable degree of velocity, according to the dilatation or contraction of that organ. In flowing onwards it receives a vibratory motion, and the air, thus vocalised, is now carried into the pharynx, where, by the various reverberations, a harmony is created in the human voice which no instrument can equal.

“Here, then, is the first stage, or that in which inarticulate sound is produced. In the next we find the sound divided and articulated by the action of the tongue upon the teeth, lips, and palate, and according to its direction upon any of these it is termed *dental*, *labial*, or *palatal*. This division of the vocalised air is *speech*.

“Though much of the power of speech arises from the vibrations of the dilated or contracted glottis, and from the subsequent action of the pharynx, yet without the teeth speech must always be imperfect—a defect which is more sensibly felt in some letters than in others.

“*Even the loss of a single tooth affects the utterance*, and invariably produces a sort of whistling sound, when the tongue, naturally endeavouring to fill up the vacuum, an unusual action takes place, and the sublingual glands being violently compressed, throw out the saliva with such force as to eject it unpleasantly from the mouth. The cause of this whistling is sufficiently obvious if we again revert to the manner in which articulated sounds are produced. The vowels are the issue of the vocalised breath, modulated by the passages, and variously directed, but not checked or interrupted; the consonants are the same sounds checked

by the tongue, lips, or teeth. When, therefore, the air is thus partially checked, it escapes with rapidity through the opening occasioned by the loss of the single tooth, and produces the whistling sound.

"Hence we may learn why it is the vowels are so easy of enunciation, and are always the first to be acquired by children. The vowels are the consequence of one simple action; while the consonants, so called from their binding the vowels together, result from a complication of actions, or, as it is beautifully expressed by Sir Charles Bell, 'the compression of the thorax, the adjustment of the larynx and glottis, the motions of the tongue and lips, and the actions of the pharynx and palate, must all consent before a word be uttered.'"

The first rule for the preservation of the voice, and which is equally supported by ancient authorities and modern experience, is, that the public speaker should, "if he strive for the mastery," be habitually temperate in *all things*, moderate in the use of wine, and in the indulgence of the table, and not given to any personal excess. *The voice should not be exerted after a full meal.* This rule is a consequence of the first. The voice should not be urged beyond its strength, nor be strained to its utmost pitch without intermission: such mismanagement would endanger its power altogether, and it might break. Frequent change of pitch is the best preservative. The same rule holds in music. Well-composed songs and skilful singers may sometimes, for brilliancy or effect, and to show the compass of the voice, run up and touch the highest notes, or descend to the lowest; but they should by no means, in their modulations, dwell long on the extremes. High passion disregards this wholesome rule, but the orator will not be rash in its violation, nor should the composer of what is to be spoken or sung be remiss in his attentions.

At that period of youth when the voice begins to break and to assume the manly tone *no violent exertion should be made*, but the voice should be spared until it

becomes confirmed and established. Neither, according to this rule, should the voice when hoarse, if it can be avoided, be exerted at any time. If a boy would give himself a chance of having a contralto, and establishing his constitution, let him take heed and think from fourteen, for a cold will break the voice before the time of nature. Omission of singing often, but not too long at a time, will sink it, and vicious gratifications may ruin it and the constitution before the age of manhood. The singer may with more safety indulge at thirty, when the constitution of man is fixed, or even at forty, than at eighteen, when nature is in a state of growth and immaturity, though, indeed, many young proficient in music have made a shameful and speedy end who have promised fair in the beginning, and might have proceeded happily, but, setting off with too much sail and too strong a tide, suffered shipwreck in the channel before they could well get out to sea.

Some things are found serviceable to the voice, and are used by modern singers. They may be equally advantageous to a public speaker. Warm mucilaginous and diluting drinks in case of dryness of the fauces, or slight hoarseness, barley water and tea, preparations of sugar, sugar candy, barley sugar, and various sorts of lozenges. A raw egg beaten up will immediately clear the voice. Garlic is used, notwithstanding its offensive odour. *The great means of improving the voice*, as of all other improvement, is constant and daily practice. The professional exercise at the bar, the senate, and the stage, if properly attended to with a view to improvement, may suffice for the orator of our times; but the ancients, besides this, were in the daily practice of preparatory declamation. Their rule was, after proper bodily exercise, to begin at the lowest tones of their voices, and go gradually to the highest. This was called *anaphonesis*, and sometimes the *pæan* and the *munio*; the former the exercise of the voice in the highest pitch, the latter in the lowest. They used to pronounce about five hundred lines in this manner,

which were committed to memory, in order that the exertions of the voice might be the less embarrassed.

It is a great and general error of players at rehearsal, as the common practice is, to mutter over their parts inwardly, and keep in their voices, with a mistaken idea of preserving them against their evening acting. The surest natural means of strengthening their delivery would be to warm, dephlegm, and clarify the thorax and windpipe by exerting (the more frequently the better) their fullest power of utterance, thereby to open and remove all hesitation, roughness, or obstruction, and to tune their voices, by the effect of such continual exercise, into habitual mellowness and ease of compass and inflection, just from the same reason that an active body is more strong and healthy than a sedentary one.

The second rule is bodily exercise. The ancients recommend walking a certain distance before breakfast, about a mile. In order to strengthen the voice, Sheridan advises that any person who has fallen into a weak utterance should daily practise to read and repeat in a large room in the hearing of a friend. His friend should be placed at first at such a distance as he may be able to reach in his usual manner; the distance is then gradually to be increased, until he shall be so far from him that he cannot be heard beyond him without straining. There his friend should hear the most part of his declamations; and through this practice he should proceed, step by step, daily, by which he may be enabled to unfold his organs, and regularly increase the quantity and strength of his voice. Perhaps the same practice might more easily and effectually be made in the open air, as every speaker cannot obtain the use of a room of the requisite dimensions. Walker's rules for strengthening the voice are excellent and practicable: his general principle is that, in order to strengthen the higher tones of the voice, such passages should be practised as require the high tones. These are particularly a succession of questions end-

ing with the rising inflection. For the middle tones passionate speeches requiring them should be practised; and for bringing down the voice, which is apt to run wild, and not to be in our power when long continued above, the succeeding sentence is to be begun, if the subject will admit, and delivered in a lower tone.

It has been considered that one of the most prominent and exciting causes of follicular disease of the air passages is the too frequent or irregular exercise of the vocal organs in public speaking and singing.

The frequent occurrence of the affection among the members of the clerical profession has led to the adoption of this opinion, which cannot be sustained by observation.

"Where," observes Dr. Horace Green, an American practitioner, "a predisposition to the complaint exists, an undue or irregular exercise of the organs of voice will tend, undoubtedly, to develope the disease; but, without the presence of this increased susceptibility, the regular use of the voice in public speaking, singing, &c., is not more liable to excite the disease than is the constant employment of this organ in ordinary conversation. If public speaking alone is the exciting cause of the malady how happens it that lawyers, who speak every day in the year, are so seldom the subjects of this affection? I have made inquiry among the auctioneers of this city (New York), many of whom are engaged at their daily sales, and I have not been able to find a single individual of this fraternity who has been, to any considerable degree, a subject of the throat-ail. The truth is, the vocal organs are strengthened by the daily and regular use of the voice, in precisely the same manner as the arm of the smith is invigorated, and its muscles strengthened and developed, by constant exercise."

To some other source, therefore, rather than public speaking, must we look for the cause or causes of the frequent occurrence of laryngeal disease among clerical men. *These causes, as far as this class of persons are*

concerned, are to be found both among the predisposing and the exciting. One of these is the conjoined effects of intense study and mental anxiety. Another cause may be found in the sedentary habits of the clergy; but one which may be deemed pre-eminent as the cause of follicular laryngitis with the members of this profession, is referrible to the great inequality in the daily degree of exercise which they give to their vocal organs. Remaining quiescent, or nearly so, during six days of the week, these organs, on the seventh, are required to perform a more than double duty; and this too, when, from the fact of their having been so long at comparative rest, they are less capable of enduring fatigue than if the muscles, of which they are composed, had been subjected to daily exercise in public speaking. If the labours of clergymen could be equally apportioned to all the days of the week, instead of being weakened and diseased by public speaking, the voice would become strengthened and developed by such employment, and the individual would be much less liable to be affected by laryngeal disease.

The attempt to use the voice by public speaking when the individual is labouring under the effects of a severe cold, or an attack of influenza, or the sudden and violent exercise of the voice, although the vocal apparatus at the time may have been apparently in a healthy condition, has frequently laid the foundation of laryngeal disease.

Follicular inflammation of the throat and air passages, even in its more aggravated form, is not confined altogether to public speakers; persons of all professions and occupations may be the subjects of its attack. Females, however, are much less liable to the affection than men. This immunity from laryngeal and tracheal diseases in the sex has been observed by Messrs. Serres, Louis, and other pathologists.

CHAPTER XI.

THE HAIR.—THE HANDS.—THE FEET.

“ Hair! ’tis the robe which curious Nature weaves
 To hang upon the head, and does adorn
 Our bodies; in the first hour we are born
 God does bestow that garment; when we die,
 That, like a soft and silken canopy,
 Is still spread over us. In spite of death
 Our hair grows in our grave, and that alone
 Looks fresh when all our other beauty’s gone.”

DECKER’S *Satiromastix*.

“ The Hand,—what wondrous wisdom plann’d
 This instrument so near divine!
 How impotent without the hand
 Proud Reason’s light would shine!
 Invention might her power apply,
 And Genius see the forms of heaven,
 And firm Resolve his strength might try;
 But vain the will, the soul, the eye,
 Unquarried would the marble lie,
 The oak and cedar flout the sky,
 Had not the Hand been given!”

“ While his staff the trav’ler handles
 In his weary journeying,
 Thorns may tear his dusty sandals,
 Fangs his tender feet may sting;
 But were life devoid of pain,
 Bliss were proffer’d man in vain.”

IF you pull a hair from any part of your skin, and look at its root with a magnifying glass, you will find it of an oval form, and composed of a softish, glutinous, or pulpy matter, contained in a semi-transparent bag, open

at the lower end to receive nerves and blood-vessels, and at the upper to receive the hair. This root is fixed in the substance of the inner skin, by which it is nourished with blood and other fluids. The roots of the hair are planted here in great profusion over the whole body.

Each hair is formed of ten or twelve smaller hairs, which unite at the root, and form a hollow tube some what like a very fine stalk of grass, and also, like some kinds of grass, jointed at intervals. The joints seem to overlap one another, as if one small tube were inserted into another, and so on to the end of the hair. This structure, though invisible to the naked eye, may be made manifest to the touch. Take a hair several inches long, and work it between your thumb and finger, and you will find it will always work towards the top end, and never (turn it as you will) towards the root end, proving that the rough overlappings are all directed to the top. It is this property that the hat-maker takes advantage of in making his felt, and the dyer in fixing his colours. Like the outer skin and the nails, the hollow tube of the hair is semi-transparent, and takes the colour of the matter which rises in this tube from the root. It follows, indeed, pretty uniformly the colour of the skin, being very dark in the negro, and always white in the albino, whilst it takes all intermediate shades in Europeans—flaxen, auburn, caroty, &c. The hair corresponds also with the colour of the eyes, light hair seldom accompanying dark eyes.

Cleanliness of the hair is of the first importance, and to effect this nothing is better than soap and water. The soap should be mild, well and plentifully rubbed in, and afterwards thoroughly removed with an abundance of water. The frequency with which this process should be repeated will depend upon the individual: persons with light, thin, and dry hair will require it more seldom than those with thick, greasy hair, or who perspire very freely. Once a week could scarcely be deemed too troublesome when the object in view is consi-

dered, and this may serve with most persons, though those in whom the last-mentioned qualities of hair are very marked would benefit by a more frequent resort to it.

The *comb and brush* should be next considered. The former should have fine teeth, and they should be inserted to the roots of the hair as nearly parallel with the scalp as possible, and then drawn gently along the full length of the lock, which, if long and thick, should be held by the other hand between the comb and the roots, when the former is sufficiently distant from the head, in order to prevent any strain upon the latter. In this way it does its work very effectually, and does not injure the glands. To smooth the hair, and put it into proper position, it may have to be carried along perpendicularly to the surface, but this can be done without pressing it in too much. For the same reasons the brush should not be used too forcibly, or with too much pressure.

When there is any tendency to sores or eruptions on the heads of children fine combs are very apt to promote them. There is no doubt that the heads of young persons which are never touched by them may be preserved much cleaner by strict attention than such as are scratched and scraped every day. If any dirt appear on a child's head which a brush will not remove, that particular part should be rubbed with a towel and soap and water; but, in general, the brush will be found quite sufficient to keep it perfectly clean.

The more seldom, indeed, a fine comb is applied to the head of an infant the better. When, however, those of ivory, tortoiseshell, or bone are used, the greatest care is necessary, lest they wound the skin and produce a sore, or, by unduly irritating it, augment the production of the scurf they are often intended to remove.

It should be particularly remembered that no strain should be made on the roots of the hair, either in the act of "doing" it up, or when done up. To this strain it is owing that so many women, and young ones too, are bald on the sides of the head, the very last place,

if ever, that nature makes them so. With some, from the same cause, the top of the head, where the "parting" comes, is not only destitute of hair, but even the hair-glands themselves are destroyed long before middle age has arrived. Making the hair too compact, so as to heat the head, incurs the risk of impairing the health of the hair-glands, and inducing early baldness or loss of colour.

Pomades and similar preparations should be used as sparingly as possible, and only when necessary on account of some real imperfection of the hair, such as a roughness or too great dryness of it. Some persons imagine that the roots require frequent anointing, that the hair may grow more freely. This is a great mistake; cleanliness will do all that is wanted there, and clogging up the pores with grease is not the way to procure a healthy condition of the scalp and its appendages.

The best form for using any unctuous substance is to have it mixed with some liquid. This enables it to be more easily distributed through the hair, and makes it more convenient to apply.

An excellent preparation is made by gradually adding to white brandy as much castor-oil as it can hold in suspension, afterwards adding a slight surplus, and neutralising this last with ammonia-water. As small an amount of any favourite perfume as will overpower the castor-oil odour will complete the compound.

This is the staple of many preparations which are sold, under different names, as "wonderful restorers and beautifiers of the hair."

M. Cazenave, the eminent French physician, some few years since wrote an excellent treatise on human hair, which was translated by Dr. Burgess. Respecting baldness the author says, "Whether resulting from general disease or from profound constitutional disturbance, baldness will disappear in most cases with the removal of the cause which produced it. However, in this and similar instances the efforts of nature may be assisted by useful and efficacious remedies. These

are the cases in which the scalp may be advantageously shaved, and the secretion of the hair stimulated by dry friction, tonic lotions, as rum for example, the patient being at the same time submitted to a judicious and well-devised system of regimen. Everything tending to debilitate the constitution should be removed or avoided, and the tone of the system invigorated by nutritious food.

"The shedding of the hair may be occasioned, or at least greatly facilitated, by the very means adopted for dressing and adorning it. The too frequent use of hard brushes, fine-tooth combs, &c., and particularly the use of those cosmetics which are recommended for the cure of baldness, must be enumerated in the same category with other causes of destruction of the hair.

"We find usually associated with a sound constitution and good health the most beautiful hair, at least, that which appears in the most perfect condition. Hence the surest means of preventing alteration, or shedding of the hair, and premature baldness, is to maintain the general health in the best possible state; to carefully avoid whatever disturbs the equilibrium, debilitates, or lowers the standard of health.

"It is impossible to diminish, and still more so to remove, the amount of care and anxiety which attaches to every individual through life; but we can warn a person who, still young, and without any tangible disease, begins to lose his hair, to avoid as much as possible whatever is likely to agitate the mind, late hours, too much intellectual labour, habits of solitude, and indulgence of the passions.

"Persons of a naturally delicate and feeble constitution, who, in order to gratify vain desires, or from other causes, voluntarily deprive themselves of a necessary portion of their food, throw away one of the principal elements of health, and expose themselves to disease. In such cases, if the hair begins to fall—a not unfrequent occurrence—and permanent baldness is imminent, it will be proper to remind the patient of the important

influence which the general condition of the system exercises upon the hair either for good or for evil, and that, with a view to the preservation of that appendage, a generous, nutritious diet must be employed, as well as those external auxiliaries so indispensable for the general maintenance of the health—air, light, and exercise.

"The hygiene of the hair ought to be considered in a double point of view as regards the attention and management it requires. 1. With reference to the absence of all habitual care. 2. With respect to the opposite condition—excess of care. Thus, for example, we find in one case that there are many persons who, utterly regardless of the toilet, neglect their hair, and even the common rules of cleanliness, and so allow the matter secreted by the scalp to accumulate, and remain there too long, until it becomes an irritant to the skin, causing eruptions, or, as more frequently occurs, alternation of the texture of the hair, by which it loses its brilliancy and pliancy, and finally even partial or complete loss of the hair itself."

M. Cazenave recommends the following simple method of treating the hair:—"Pass a fine-tooth comb at regular intervals every twenty-four hours through the hair, in order to keep it from matting or entangling; separate the hairs carefully and repeatedly, so as to allow the air to pass through them for several minutes; use a brush that will serve the double purpose of cleansing the scalp and gently stimulating the hair-bulbs.

"Before going to bed it will be desirable to part the hair evenly, so as to avoid false folds, or what is commonly called turning against the grain, which might even cause the hairs to break.

"There is, on the other hand, a class of persons who carry to excess the dressing and adorning of the hair, especially those who are gifted with hair of the finest quality. Thus, for example, females are in the habit, during the ordinary operations of the toilet, of dragging and twisting the hair, so as almost to draw the skin with

it, the effect of which is, in the first instance, to break the hairs and fatigue the scalp, and finally to alter the bulb itself. The fine-tooth comb is also too freely used, especially where the hair is divided—a part that the most particular attention seems to be bestowed upon. These separations, and the back of the neck whence the hair is drawn, in females, towards the crown of the head, are the parts which first show signs of decay or falling of the hair.

“With these we class *the injurious effects resulting from the exigencies of fashion* as to the dress of the hair. As a general rule, every method which will not admit of the hair being pretty free, smooth, and raised, without being twisted, drawn, or fatigued, should be rejected, and especially those which require the intervention of artificial curling. The heat of the iron necessarily dries up the hair, renders it fragile, irritates the skin, and consequently injures the functions of the scalp.

“*The dress of the hair best adapted for females*, and especially for young girls, is that which keeps the hair slightly raised, drawn as little as possible, carefully smoothed, and arranged in large bands, so as to permit the air to permeate; to unfold it morning and evening, and brush it lightly, but carefully; in a word, to dress it in such a manner as will not require dragging or twisting, but leave it free. If fashion requires it to be tied and drawn, and the individual yields to the mode, it should be unfolded morning and evening, and allowed to hang loosely for several minutes.

“In some individuals the secretion which lubricates the hair becoming, from some cause or other, deficient, the hair dries, and it appears most natural to have recourse to oily, greasy, or balsamic cosmetics, alleged to be useful in some cases, and especially in this. However, a number of individuals moisten their hair with the class of agents referred to with a view of giving it a suppleness, freshness, and brilliancy, which are merely evanescent, and are even then obtained at the

expense of rendering the hair drier than ever, more fragile, and finally causing it to fall.

“Generally speaking, *when the hair is naturally moist and oily, it is wrong to oil it habitually*, and of course doubly so when it shows a tendency to dryness. I also think the habit of immersing the head in cold water every morning, so frequently practised, injurious to the hair.”

The same may be said, though in a more modified sense, of the habit which women have of incessantly moistening the bandeaux for the purpose of making the hair appear for a moment smooth and dark. *Cold baths, especially salt-water baths, also exert an injurious influence upon the condition of the hair*; hence it should be always covered carefully with an oil-skin cap while in the bath.

There are many persons whose hair is naturally moist and greasy, and the secretion of the scalp so abundant as to produce a layer of incrustation, which is reproduced as often as it is removed by the operations of the toilet. Notwithstanding this natural greasy condition of the hair, these very persons constantly use oil and pomatum “warranted, without fail, to nourish and preserve the hair!” the natural effects of which are to excite, and often to increase materially, the secretions of the scalp, already unnaturally profuse, to alter the roots of the hair, to facilitate its fall, and sometimes even to occasion its complete disappearance.

The growth of the hair is not, however, always impeded by artificial means. This may result, also, from allowing it to become entangled and matted together—a condition to which it is peculiarly liable from its form. Hence, under all circumstances, a due attention to combing and brushing the hair through its whole length is absolutely necessary for its proper preservation.

Independently of the good effects of these operations in rendering the hair pervious to the fluids which rise from its roots, they assist its development also by freeing the scalp from accidental impurities, facilitating

the circulation through its vessels, and thus enabling the hair to perform freely its functions.

Another means of promoting the growth of this structure, and of insuring its permanency, is by frequently cutting it. It must be obvious that, when the hair is kept short, its fluids are less liable to be obstructed in their passage than when it is long; for it is difficult, in the latter case, to preserve it straight, and permit it to have its natural flow. It is in early life particularly that frequent cutting will be found advantageous.

Flowing tresses are certainly among the most attractive ornaments of female beauty, and their proscription would be a great loss. When, however, the hair becomes thin and irregular, or its beauty is otherwise impaired, we know nothing better calculated to restore its proper growth than cutting it short. We may also remark that frequently cutting the hair prevents it from splitting at the ends and growing forked, the occurrence of which, so common in young persons, gives it an extremely inelegant and ungraceful appearance.

In children, keeping the hair short is a circumstance of no little importance, and should not from any light consideration be neglected. Their health is prejudiced by a contrary practice. Nothing is more common than to see a luxuriant crop of hair accompanied in children by paleness of complexion, weak eyes, and frequent complaints of headache.

With children of eight or ten years of age the cooler the head can be kept the less danger there is of many maladies peculiar to that part of the body, especially water on the brain. There is also good reason for believing that children who have a great quantity of hair are those most liable to eruptions, as scald heads, &c.; it is, at least, certain that in them eruptions are very difficult to remove. The trouble, also, of keeping long hair sufficiently clean, and the length of time necessary for this purpose, are often the cause of much ill-humour and many cross words between children and their attendants, which it would be better to avoid.

Mothers whose vanity may be alarmed, lest repeated cutting the hair for so many years should make it coarse, may be assured they have no cause for this apprehension, provided the hair be kept constantly brushed.

We have already alluded to the *danger attending the use of hair dyes*. They are not, however, used solely for the purpose of restoring the previous colour of the hair, but they are frequently resorted to with the view of altering tints of hair not considered becoming, particularly those in which a red hue predominates. This is an absurdity that cannot be too severely condemned. *The colour of the hair is not a sole peculiarity* in such cases, but it is always accompanied by a certain kind of skin; that is, one of a particular colour and texture, which can produce nothing but reddish hair. The eyes are also coloured to match, and, in fact, the red hair is but one item in a harmonious *ensemble*, which is utterly ruined by altering only that item; the harmony is destroyed, and whatever grace may have been derived from that, lost. The deception can never be very great; for, if the observer does not at once detect the incongruity of dark hair and fair or freckled face, the tints at the roots of the hair, made brighter by contrast, will in a few days expose the fraud.

A few words on the *proper covering for the head* may with propriety be introduced here. Herodotus, on visiting a field of battle, where the slain of the Egyptians and Persians had been collected in separate piles, was struck with the difference in the thickness and firmness of the skull in the individuals of the two nations. That of the former was so hard that it could not be fractured without difficulty, while that of the latter was so thin and weak as to be readily broken by a small pebble. This difference the historian accounts for from the circumstance of the Egyptians being accustomed from infancy to go bareheaded, whereas the Persians constantly wore thick and heavy tiaras or turbans. Although it is hard to believe with Herodotus

that the fragile skull of the Persians was owing entirely to their enormous head-dresses, nevertheless, we are persuaded that the covering mankind are in the habit of wearing upon the head has no little influence upon their health and comfort.

There is no part of the body which suffers more from heat and pressure than the head—no one, therefore, which requires to be kept cooler and less encumbered, neither of which important requisites is sufficiently obtained, in the male sex particularly, by the hats now in use. When we refer to the general experience of antiquity we find it to be decidedly in favour of the precept that the head should be lightly covered. The care which nature herself has taken to protect this portion of the body from the influence of external agents, by clothing it with hair, renders, indeed, under ordinary circumstances, any species of artificial covering unnecessary.

The great inconvenience which arises from keeping the head warmer than nature intended is that in youth, by causing an increased amount of blood to be sent to this part, not only is the scalp more liable to be the seat of eruptive diseases, but even the brain itself is liable to injury from slight attacks of cold, terminating frequently in incurable dropsy; while, at a more advanced age, a short exposure, without the usual protection, will almost invariably occasion a rheumatic affection, or what is ordinarily termed a cold. All expose the face with impunity in the coldest weather, but every one is aware of the risk incurred by remaining bareheaded for a short time in the open air during the cooler periods of the day or year. This difference is to be attributed solely to the extreme care which is taken from birth to protect the head from the operation of cold.

It is, perhaps, not generally known that a covering for the head is far more necessary during exposure to the direct rays of the sun in summer, and in hot countries, than during dry weather in winter, or in cold and temperate climates. From the first, apoplexy, inflammation of the brain, and even sudden death, have been known

to result; whereas, from the latter, we are convinced no one would experience any inconvenience, provided the practice of going with the head bare were commenced from infancy. Even the effects of extreme heat are more effectually guarded against by an umbrella or parasol than by the covering usually worn.

Black hats afford but little protection in summer. Instead of reflecting the heat they admit it to act even more strongly upon the head. By those who are much exposed to the sun white or light-coloured hats ought, therefore, always to be preferred.

Too heavy or tight a covering for the head invariably gives rise to a headache more or less intense. There are few who have not experienced the martyrdom inflicted by a new hat or bonnet of too restricted dimensions. It may be compared, in fact, to that species of torture practised in former ages by tying a cord firmly round the temples.

We would not be misunderstood. We do not pretend to advise any of our readers, either male or female, old or young, so far to deviate from general usage as to walk bareheaded in the open air. We merely desire to point out to them the propriety of wearing hats or bonnets constructed of such materials as will render them perfectly light and easy, and prevent the head from being kept too heated.

A few remarks on shaving may be useful to our male readers. The first thing to be done in order to render the hair of the beard easy to be cut is to make it hard, crisp, and brittle; for you may as well think of cutting moist paper smoothly with a pair of scissors as of shaving your beard while the hair is soft and oily.

Mr. Earle relates that a patient of his cut himself while shaving, and probably he had divided obliquely some of the hairs near their roots, which continued to grow, but not finding a proper passage through the skin, they coiled up beneath it, and formed several very painful pimples, that at length put on an ulcerated appearance. If Mr. Earle had not carefully extracted

the roots of the hair they might have ended in a fatal cancer. Mr. Earle stated that many such cases arise from the irritation of shaving, and the patients usually refer to a slight cut or a scratch from a blunt razor. A wound thus made is irritated and aggravated every time the patient shaves, or if not, the hair being allowed to grow, gets matted together, and prevents the application of proper remedies. The hair should be cut closely by small scissors, and if the wound does not improve, but spreads, the diseased part should be operated upon by a medical practitioner. The older the patient is the more is the danger, as cancer seldom attacks the young. There is greater chance of danger if a wart or mole has been cut or scratched.

Every one subjected to the ordeal of shaving knows full well the comfort of a good razor.

Advice on the preparation of the hone and razor will be useful. The first thing that should be done to the *hone* is to wipe it clean, and the second is to spread a few drops of pure oil on it, or on that part of it which is to be used. Of these two most simple operations the objects are to prevent any particles of dirt or other substance from remaining on the hone, and preventing its full and equal effect, and also to render the edge produced by it as fine and smooth as possible. When the operator has proceeded thus far, let him place his thumb and forefinger sideways on that part of the razor at which the handle terminates, so as to have firm hold of the razor and its handle. Let him then lay one side of the razor flat upon the hone, so that the shoulder of the razor (which adjoins the tang) may touch the nearest part of it. Having gained this position, he may begin to draw the razor towards him in a manner somewhat circular, and with a moderate degree of pressure, till he arrives at the very point of it. When this has been done on one side the razor should be turned, and the same operation take place on the other side of it. In this manner he may proceed until the hone has produced the desired effect.

This result will be evident from the wiry appearance which the edge of the razor assumes when sufficiently honed ; and, until this wire is produced from one end of the razor to the other, the operation is not complete.

The first thing after preparing the razor is for the individual to wash his face, or that part over which the razor is to pass, with warm water. The good effect of this procedure is to remove the dust and dirt which cling to the skin and beard, and which would diminish considerably the keenness of the instrument. Warm water is preferable to cold, not only because it is better calculated to produce this effect, but because, by rendering the skin more smooth and yielding, it will lessen the pain and difficulty of the operation.

When the operator has proceeded thus far he must prepare his lather ; and this naturally leads to the consideration of the soap which he should use for that purpose. The principal difference of the common soaps is in their strength, and, for domestic purposes, that which will raise the thickest and strongest lather is the best. A respectable chemist will supply the quality best suited for shaving, and uniting the advantage of a durable lather with the power of softening and healing, rather than irritating the skin.

A question remains relative to the application of the lather, whether it should be raised with a brush, or be produced by the action of the hand only. The minutiae of the latter method are, first, washing the beard with water, then rubbing it with a piece of moistened soap, and afterwards raising the soap into a lather by the immediate application of the hand itself. This is called *rubbing it in well*, and one would suppose, from the expression, that the admirers of this method imagined that to produce its full effect the lather should be rubbed into the skin, and not into the beard only. When a stiff beard is suffered to become long it may, indeed, be better to have recourse to this method, but this is seldom the case with those persons who are most friendly to this expedient.

The question whether a shaving-brush should be hard or soft may be decided in the same manner. Worthy of consideration, also, is the quantity of lather that should be applied to the beard previously to the beginning of the operation. In proportion to the greatness of the quantity will be the ease with which the beard is removed; the injury, also, which the edge of the razor receives from the operation will be lessened.

The majority of *razor and razor-strop* makers have recommended the practice of dipping the razor into hot water, as conducive to ease in shaving; but it should be remembered that the expansion of the edge will be accompanied by an exactly equal degree of softness, and, of course, that its supposed good effect must be momentary, but that a razor of perfect excellence, which has often had this trick played with it, can never be restored to its former state. Those only who use a microscope in the examination of their razors can be fully aware of this fact.

The proper method of using a razor can only be acquired by practice; but a little previous consideration of a few particulars will facilitate the acquisition of it. Before the razor is applied to the face that part of the skin, the hair of which is to be shaved first, should be stretched tightly by the fingers of the left hand. When this is done the razor should be applied to the skin in a flat position, and with a very small degree of pressure. The direction which it will then assume will be such as to enable it to attack the hair at the root, and most quickly to produce the desired effect. Indeed, it is impossible to remove the beard completely without adopting this method; for if the razor is not pressed in some degree on the skin the hair will bend down before its edge, and the operation may be repeated with little effect on the beard until the skin is irritated.

Another *defect in the management of a razor* which is very general diminishes the power of the instrument. This is the custom of directing the edge of the razor in a straight line towards that part of the beard on

which it is intended to operate, instead of drawing it obliquely down during the time that it is pushed forwards. The consequence of this practice is, that one part of the edge only is brought to bear on the object, whereas the principle on which the instrument is formed is that of cutting, not by the direct application of weight or force, but by the quick succession of its teeth in the same direction, and over the same part of the substance.

When the operation of shaving is finished the razor should be carefully wiped and strapped a little, that no rust may be formed on the edge. In any other part of its surface a little rust will affect only the appearance of the instrument; in this it will considerably lessen the power of cutting.

THE FEET.

Upon no part of our persons have the effects of a faulty fashion of dress more strongly impressed themselves than upon our feet. "We well remember," observes a modern writer, "the first foot we ever saw which had attained to adult age untrammelled by the deforming and stunting influence of a shoe. As much as our knowledge of physiology had prepared us to make, as we thought, ample allowances for the effects of compressed and distorted bones, for displaced tendons, and for blighted muscles, we were, nevertheless, surprised greatly at the contrast between the gaunt, angular, and attenuated members that had been encased from childhood in shoes, and the foot to which an Arab sandal had allowed every development that nature intended. Full, rounded, and even plump in its general form, it yet had great expression in the markings of muscles well brought out by habitual use. The arch, though not supported, as ours is, by the shoe, still retained an undiminished curve, and gave another proof of the falsity of our

notions, that nature ever needs some help of art in retaining her grace of form. Each toe, regular in its arrangement and symmetrical in its shape, was tipped with a nail as seemly as that of a finger, and possessed an independence of play and readiness of action difficult even to conceive by those with whom these members have ceased to be active ones, and who, in many instances, only realise their existence by the pain of the excrescences with which they are furnished."

And why should not the foot have this excellence of form, this elegance of shape? And why should it be restricted in that grace, in that fulness of purpose, for which it was so admirably devised? Of bones twenty-six enter into its construction, bound together by more than seventy ligaments. To them are attached the tendons of twelve large muscles, which, though situated upon the leg, by means of multiplied pulleys impress their action even upon the toes, while twenty more muscles, with various offices, are to be found in the foot itself. The heel, receiving first the weight of the person in walking, is provided with an elastic cushion to protect it, and to save the rest of the frame from the jar that a less yielding support would give it at every step. Beneath the arch this cushion, not so necessary to resist direct pressure, is replaced by a powerful ligament to bind the extremities of the arch together, and thus to secure firmness to the support when, in the further act of progression, the heel is raised from the ground. The ball of the foot is then the sustaining point, and fitted for this by another like cushion, while the last support is given, and but for a moment, by the toes, converted on the instant by a dozen muscles into lively propulsive springs, exerting a final effort in transferring the weight of the frame to the other foot. A wondrous construction and elaboration of mechanical detail were surely intended for something better than to be wedged into a leather casing, which soon renders much of this machinery useless, and some of it even embarrassing.

The faults of our shoeing, the source of nine-tenths, at least, of the suffering we experience from our feet, are several—of size, of shape, of construction, and, in some instances, of material.

Until within the last thirty years, whatever may have been the fashion of the shoe, it was always of a size sufficient to afford ample room for the foot within, sometimes, as is well known, exceeding this standard of propriety, and attaining enormous dimensions under shapes equally absurd. Whatever elegance they possessed was derived from the material, and from the various adornments of bow, buckle, or other trimming. Within the period above mentioned *small feet have been in fashion*—no matter what the stature or bulk of the person, the smaller the feet the better. The consequence is that the boot or shoe is reduced to the least practicable dimensions. *The result of this is that the foot is cramped*, the proper development of all its parts is prevented, and injurious consequences occur. The nails are pushed against their roots, painfully irritating them, and in time producing a thickening and distortion of the former.

When, from fault of shape, the great toe is thrust outwards a strain is kept up continually upon its joint with the foot, the ligament soon yields, and an angle is formed. This, in its projection, receives an undue share of the pressure of the shoe. *The least evil that follows is a large bunion*. If it occasions, which it is not unlikely to do, inflammatory action, the joint immediately in contact with it, and already stretched partially open, exposing its delicate internal structure, generally shares in the inflammation, and the evil becomes a very serious one. The flesh on each side of the nail, which ought not to be raised any more than that on the thumb, is pushed up so as to entirely imbed each edge, particularly the inner one. The hard substance pressing into the flesh produces inflammation, frequently of a most tedious and troublesome kind, requiring sometimes that the nail should be torn

out in order to remove the exciting cause, and permit the re-establishment of a healthy action. In several instances we have seen the second toe forced up so as to have to lie upon the edge of the great toe, and that of the third. When this continues for any length of time it is a tedious and difficult thing to remedy. It is strange that, at the first warning, it should not be prevented.

The remedy for these evils is to have the shoe made to fit the foot in size and shape. To attain this, stand with the naked foot upon a sheet of paper, and let another make an accurate outline of it. To shape the sole of the shoe from this, the size of the heel will not require altering. From the inner side of this, if the foot is not deformed, a straight line carried forward will skirt the whole inner edge of the great toe: this should be unaltered in the main, only rounding it out under the arch of the foot, where the sole is always made narrowest. Begin on this line three quarters of an inch beyond the end of the toe, and shape this end of the sole by a proper curve, falling back at its outer end towards the lesser toes. So far it is plain work. It will now require some judgment to furnish the outline for the outer edge of the sole, that is, for the line joining the heel with the outer end of curve just mentioned. If this line is carried too far out the sole will be broader than necessary, and the toes chafe from too much motion in the shoe; if not far enough out they will be too constricted, and the common fault of the shoe be perpetuated. The rule we have found to answer, in the average, is to let this line cut off the three outer fourths of the breadth of the little toe. This will give sufficient room, and yet be a good fit. The rude outline may now be finished by harmonising the curves and rounding off the toe of the shoe, as far as it can be done, without affecting that point of it occupied by the foot. The process may require some ingenuity, but is not in itself difficult, and it is the only way of getting a shoe properly, or, indeed, really

fitted to the foot. The straight line on the inner side is of great importance, for it is the natural direction of the great toe, and any deviation from it is a deformity.

Corns are the foremost of the evil effects arising from tight boots or shoes. If the warning is regarded corns may be prevented before any mischief occurs; but, at their commencement, they excite little attention. Even when the pain commences it is generally felt at first only in the daytime, when some extra demand has been made upon the feet; but at night it is easier, and the prospective sufferer is sleepy; the thing is forgotten or disregarded until time passes, and a formidable corn has appeared. Even now much might be done to restore the part to its former state, but seldom is anything rational attempted. A few household remedies, the excellence of which generally consists in their antiquity, are used, and, if they fail, the case is looked upon as hopeless.

Corns that form on the outside of the little toe, or on the top of the others, are, for the most part, hard and projecting, and, until an advanced stage, are not remarkably sensitive. Those situated between the toes do not project much, but press backwards into the true skin, producing, much more rapidly and effectually than the others, a disorganisation of its delicate structures, and soon affecting the tissue beneath. From their being kept constantly bathed in the perspiration of the feet they are soft, and the outer layers of the thickened scarf-skin can generally be easily detached with the finger-nail, leaving a concavity, at the bottom of which are seen the red and sensitive papillæ. *In treating corns of either of these kinds* we must commence by removing the scarf-skin. In the soft ones this can readily be done. The hard ones, to facilitate it, should be soaked in warm water or poulticed until they are perfectly softened. The best instrument to be used after this is a pair of scissors with one sharp-pointed blade; at least, this is less calculated to do harm in using it. The sharp point should be pushed in flatwise carefully

at one side of the corn, and carried across to the other. The sensation of the patient will advise how deeply this can be done. When carried across the blades should be closed, and thus the thickness of the epidermis is cut through, leaving a sharp edge on each side of the cut. These sharp edges can be readily seized by the thumb and finger-nails; and by these means each half can, if slowly and carefully done, be peeled off from the corn, which should then be covered with a piece of soft kid or buckskin. To guard the tender surface from pressure a piece of cotton wool may be placed over it.

It should be understood, however, that this treatment, simple as it is, must not be undertaken if there is any inflammation in the corn. This last condition, which sometimes occurs after a walk or a dance, and which is frequently accompanied by collections of matter beneath the scarf-skin, must first be entirely subdued by rest and a poultice.

The first step in the formation of *Bunions*, as before observed, is wearing a boot or shoe which will bend the great toe outwards, so as to make an angle at its joint with the foot. This angle, receiving not only the continual pressure of a too narrow shoe, but an increased one every time the foot is thrust forward into the shoe, becomes irritated, and something like an incipient corn, only on a more extended scale, is formed. There is, however, this addition in the bunion to the construction of a corn—the spot at which the angle above mentioned is formed nature has attempted to protect from all unavoidable chafing by placing there, just beneath the surface, a little bag, called a bursa, which, being filled with a glairy fluid, enables the skin to glide readily over the parts beneath, and thus shields them from irritation. And disregard for propriety turns this kind and ingenious provision of nature to our harm, for the chafing and excitement of the surface are soon communicated to this bag, which is not slow in producing inflammation, always painful and tedious in such places. The joint, also, so near, and already strained

open, has its share in the trouble, and if all this be disregarded, or not properly treated, a very serious and complicated disease may occur.

The treatment of bunions may be readily seen from the above explanation of their nature, and from the directions we have given about the care and cure of corns.

Distorted toes are of frequent occurrence. The toes, when distorted sufficiently long to permit the bone to be altered in shape, can scarcely be brought back to their proper condition or situation. When the deformity is detected in an early stage, and particularly in children, it can, if care is taken, and proper means adopted, in most cases be entirely remedied. The exercise of the parts will insure their better development; and, as this takes place, they, obedient to a kindly law of nature, will again resume their proper form and position. With adults, or where such a course is not practicable, it must be imitated as far as possible, by allowing the feet the largest latitude compatible with comfort. The toes that are displaced may be brought gradually into their proper shape by bandages, or bands of tape, or of sticking-plaster properly adjusted. For instance, if the second toe is raised above the toe on each side of it, first, the shoe should be made broader, so as to give room for the distorted member when it gets into place. Then, to assist it to do this, a long strip of broad tape may be used. Place the middle of this over the top of the toe, carry an end down on each side of the toe, between it and the one next to it; then bring these ends up on each side of the foot, cross them on the instep, carry them round the ankle, and, bringing them in front of it, tie them there. The effect of the straps will be to draw the toe down into its place at every tread of the foot.

The turning in of the great toe-nail is a very severe complaint, arising, as already stated, from a want of proper breadth in the shoe across the toes. The effect of this want is, first, to compress the toes together; next, the

flesh on each side of the nail of the great toe is forced up and pressed against its edges; and lastly, the nail is bent so that its edges are forced perpendicularly downwards into the flesh. An inflammation soon ensues, which, unless relief is given, goes on until an ugly ulcer is formed where the edge of the nail constantly chafes the soft parts. Proud flesh now shoots up from this deep fissure; the root of the nail begins to participate in the inflammation; and there is a tendency to the formation of an ugly, painful, and fetid ulcer, extending from the end of the toe down one side of the nail, and, in prolonged cases, around its root and along the other side also.

When a tendency of the nail to turn its edges down into the flesh is first perceived a little care will soon remedy it. Shave the nail very thinly from root to end, on a line half way between the inverted edge and the middle of the nail. This can easily be done with a sharp pen-knife or a scissor-blade. Then insert under the edge a piece of cotton wool. This will raise up the whole of the nail between it and the shaved part. The wool at first must be small in quantity; but it may in a day or two be increased, so as to free the edge entirely from the flesh. All that is now necessary is to keep it so until a little more fresh nail is formed, which will not have the tendency to curl inwards, provided, of course, that the narrow and mis-shaped shoes producing the evil are discarded. If the flesh is too sore to insert this wool a poultice should be applied, the softest and broadest slippers being worn meanwhile. *If the evil should increase surgical aid must be procured*, for if the affection reaches a certain point the only cure consists in tearing out the nail, or at least the offending edge of it, an operation attended with great agony.

Tender feet are common, especially with elderly persons. This tendency may not, in many cases, be entirely removed, but much may be done to lessen the consequences of it. The general strength of the feet may be improved by putting them into tepid water

every night, and using afterwards considerable friction in drying them. This will stimulate the skin and freshen the circulation. The benefit, however, stops here, and the rest must be done by using the softest stockings, and by greater care in the make of the shoe.

Chilblains are the result of exposure to very severe cold, followed by a too rapid heating of the part. The symptoms are redness, swelling, and an intense stinging pain. If the part has been frozen the skin may be raised into a blister, and even bad ulcers may form if the affection extends deep enough.

Prevention in this, as well as in all other like complaints, is better than cure; and persons should be constantly on their guard in cold weather, first, against subjecting their feet to the action of cold any further than it can be helped, and next, if affected, they should take care not to heat them too suddenly. Dipping them into cold water, and then rubbing them, is the proper way to restore the circulation. Chilblains, provided the skin is not broken, are best treated by stimulating washes. If the pain, however, is great, the use of these may be prefaced by keeping the affected part bathed in equal parts of laudanum and spirits of camphor.

THE HANDS.

Little need be said about the care of the hands, for every person must, obviously, be aware of the necessity of paying due attention to them.

The nails are produced much as the scarf-skin, except that, instead of the producing surface being raised into papillæ, it presents fine longitudinal folds, richly supplied with capillary vessels. From the surface of these the nail is formed, just as the scarf-skin is elsewhere, and, as the latter dips down between the papillæ, so do the nails send off from their under surface thin plates,

which lie between, and are closely attached to, the delicate folds. Nearer the root the nail has not these folds, but simply presents ridges, underneath which the supply of capillaries is not so great; the part is, consequently, paler, and is crescentic in shape. Beyond this the root is imbedded between two folds of the true skin. The nail grows in two ways—by a deposit from the fine folds of the skin beneath, increasing it in thickness, and also by another at the root, which pushes the whole nail forward.

This interesting yet delicate method of forming the nail is very liable to disturbance, and more so by appreciable causes, accidents, and the result of carelessness, than by any proneness of nature to intermit the regular performance of her work. Blows often interrupt the formation of the nail, destroying the vitality of the cells on the under surface, and thus detaching the nail partially, or even entirely, from the true skin. This requires the production of an entirely new nail, which, unless the violence has been sufficient to materially impair the nail-making power of the fine folds above described, is a precise reproduction of the old one.

The nails should be kept from growing too long by trimming them neatly from time to time. Leave the edge of scarf-skin near the root uncut, but push it back, if necessary, with any smooth instrument adapted to the purpose. This is as much as you can do advantageously, and anything further, such as scraping, &c., gains but a small temporary advantage, at the risk of damaging the fine structure on which the excellence of the nail depends.

The habit which some children have of biting their nails should be stopped without delay, as it invariably, if continued for any length of time, permanently deforms them. Dipping the finger ends into some bitter tincture will generally prevent children from putting them to the mouth, and should this fail, each finger end ought to be encased in a stall until the propensity is eradicated.

A still greater deformity is produced by the habit of sucking the fingers when it is continued beyond the age of infancy. From the continual congestion of the part produced by this practice the finger becomes permanently larger, thicker than the others, and enlarged at the end.

We have often seen young girls prohibited from particular kinds of exercises for fear of making the hands clumsy. This is a mere notion. Of course the exercise of any organ tends to develope it, and, undoubtedly, a girl who exercised her hands would have stronger and larger ones than one who did not, but it by no means follows that her hands would be less seemly. On the contrary, the chance is that exercise will properly develope the fingers into a shape far more graceful than that generally exhibited in the attenuated appendages to do-nothing hands, and the whole extremity will be more pleasingly rounded and filled out than where it has never been subjected to that use, which is absolutely necessary to insure health and perfection of form.

Whitlows generally come under domestic treatment, at least from the beginning of their progress until the pain is too great, or the inconvenience and suffering so prolonged as to exhaust patience, when medical aid should be sought. In a large portion of cases of this disease simple remedies will suffice. A very large poultice should be applied, and renewed night and morning. When the matter appears under the skin it should have vent given to it by a free cut, and the poulticing be continued until the soreness is gone, when some ointment on a piece of linen may be applied for a few days. In some cases, however, this treatment will not suffice, and without more thorough means the usefulness of the finger is endangered, and the loss of it even risked. The reason of this difference between whitlows, as regards their severity, is this. Each finger is enveloped in a sheath like a glove-finger, made of a very strong and resistant membrane, beneath which the tendons moving these extremities play. If the inflam-

mation constituting whitlows commences among the outer layers of this sheath, or entirely outside of it—between it and the skin—the matter finds its way easily to the surface, and is there discharged; but if it commences beneath the more resistant layers of this sheath—next to the bone—the matter cannot find its way out, and therefore burrows around the bone, and in among the tendons, destroying both these structures in a greater or less degree, and, of course, impairing the movements of the finger, and even sometimes causing its loss from death to the bone. The domestic relief of whitlows should not, therefore, be relied upon too long; if speedy relief is not given *a surgeon should be at once applied to.*

CHAPTER XII.

HABITS PREJUDICIAL TO HEALTH.

" Ah me! from real happiness we stray,
By vice bewilder'd; vice, which always leads,
However fair at first, to wilds of woe."

THOMSON.

" 'Tis fearful, building upon any sin;
One mischief enter'd, brings another in;
The second pulls a third, the third draws more,
And they, for all the rest, set ope the door,
'Till custom takes away the judging sense,
That to offend we think it no offence."

WILLIAM SMITH (1615).

THE acquirement of bad habits is much easier than to get rid of them. The thralldom in which many persons live, who are slaves to some particular vice, is painful to contemplate. The feeling of pity for such individuals must, however, subside when we consider that it is in the power of all men to rise above any evil tendencies. Hone, in his "Every-Day Book," relates the instance of a person who suddenly formed the resolution of delivering himself from a habit of slothfully wasting the early morning in bed. He resolved to rise the next day betimes at a certain hour, and not only did so, but, by a vigorous effort, continued the practice to the end of his life. The surest path to success is by showing a similar spirit of determination. *A reform of all evil habits*, whether of smoking, snuff-taking, drinking, and other vicious indulgences, to be efficacious, must be entire and complete, from the very moment when the

person is convinced, either by his fears or his reason, of its pernicious tendency and operation. A single day or an hour spent with a friend, or a few old boon companions, will often render nugatory a partial reform of months' duration. Abstinence, resolute and entire abstinence, is the only means of safety and immunity. The chain must be entirely broken—so long as the links are entire, no matter how attenuated, they are ready at any moment to be coiled round and round us, until we are pinioned and shackled beyond the possibility of escape, or hope of freedom.

Professor Silliman gives the following excellent advice to young men, and the same suggestions are applicable to those of older growth :—

"If you wish for a clear mind, strong muscles, and quiet nerves, for long life and the pleasures attending health, permit me to say, although I am not giving a temperance lecture, avoid all drinks but water, and mild infusions of that fluid ; shun tobacco and opium, and everything else that disturbs the normal state of the system ; rely upon diluent drinks, of which water is the basis, and you will need nothing beyond these things except rest, and the due moral regulation of all your powers, to give you long, and happy, and useful lives, and a serene evening at the close."

One of the most striking pictures we have seen of the evils engendered by bad habits is that represented by Charles Lamb in his "Essays of Elia." The subject is entitled "The Confessions of a Drunkard." In this paper the author states that his remarks are not intended for the few who boast of their "robust heads and iron insides," and who, for a few years at least, seem proof against any excess. He speaks to a very different description of persons.

"It is to the weak, the nervous, to those who feel the want of some artificial aid to raise their spirits in society to what is no more than the ordinary pitch of all around them without it. *This is the secret of our drinking.* Such must fly the convivial board in the

first instance if they do not mean to sell themselves for the term of life." He then—after speaking of his falling into the company of "men of boisterous spirits, sitters up at night, disputants, drunkards," and of his becoming a professed joker—gives the following admonition:—

"Reader, if you are gifted with nerves like mine, aspire to any character but that of a wit. When you find a tickling relish upon your tongue disposing you to that sort of conversation, especially if you find a preternatural flow of ideas settling in upon you at the sight of a bottle and fresh glasses, avoid giving way to it as you would fly your greatest destruction. If you cannot crush the power of fancy, or that within you which you mistake for such, divert it, give it some other play; write an essay; pen a character or a description, but not, as I do now, with tears trickling down your cheeks.

"To be an object of compassion to friends, of derision to foes; to be suspected by strangers, stared at by fools; to be esteemed dull when you cannot be witty; to be applauded for witty when you know that you have been dull; to be called upon for the extemporaneous exercise of that faculty which no premeditation can give; to be spurred on to efforts which end in contempt; to be set on to provoke mirth, which procures the procurer hatred; to give pleasure, and be paid with squinting malice; to swallow draughts of life-destroying wine, which are to be distilled into airy breath, to tickle vain auditors; to mortgage miserable morrows for nights of madness; to waste whole seas of time upon those who pay it back in little inconsiderable drops of grudging applause, are the wages of buffoonery and death."

He changes his society, and thinks that by substituting the use of tobacco for strong drinks he shall reform. Of his new companions, and the effects of the tobacco, he thus speaks:—"They were no drinkers, but one from professional habits, and another from

custom, derived from his father, smoked tobacco. The devil could not have devised a more subtle trap to retake a backsliding penitent. The transition from gulping down draughts of liquid fire to puffing out innocuous blasts of dry smoke was so like cheating him. But he is too hard for us: when we seek to get off a new failing against an old infirmity 'tis odds but he puts the trick upon us of two for one. That (comparatively) white devil of tobacco brought with him in the end seven worse than himself.

"It were impertinent to carry the reader through all the processes by which, from smoking at first with malt liquor, I took my degrees through their wines, through stronger wine and water, through small punch, to those juggling compositions which, under the name of mixed liquors, slur a great deal of brandy and other poison under less and less water continually, until they come next to none, and so none at all. But it is hateful to disclose the secrets of my Tartarus.

"I should repel my readers, from a mere incapacity of believing me, were I to tell them what tobacco has been to me, the drudging service which I have paid, the slavery which I have vowed to it; how, when I have resolved to quit it, a feeling as if of ingratitude has started up; how it has put on personal claims, and made the demands of a friend upon me.

"I have seen a print, after Correggio, in which three female figures are ministering to a man who sits fast bound at the root of a tree. Sensuality is soothing him; Evil Habit is nailing him to a branch; and Repugnance, at the same instant of time, is applying a snake to his side. In his face is feeble delight, the recollection of past, rather than perception of present pleasures, languid enjoyment of evil, with utter imbecility to good, a sybaritic effeminacy, a submission to bondage, the springs of the will gone down like a broken clock, the sin and the suffering co-instantaneous, or the latter forerunning the former, remorse preceding action—all this represented in one point of time.

When I saw this I admired the wonderful skill of the painter; but when I went away I wept, because I thought of my own condition.

"Behold me, then, in the robust period of life reduced to imbecility and decay. Hear me count my gains and the profits which I have derived from the midnight cup.

"Twelve years ago I was possessed of a healthy frame of mind and body. I was never strong; but I think my constitution (for a weak one) was as happily exempt from the tendency to any malady as it was possible to be. I scarcely knew what it was to ail anything. Now, except when I am losing myself in a sea of drink, I am never free from those uneasy sensations in head and stomach, which are so much worse to bear than any definite pains or aches.

"At that time I was seldom in bed after six in the morning, summer and winter. I awoke refreshed, and seldom without some merry thoughts in my head, or some piece of a song to welcome the new-born day. Now the first feeling which besets me, after stretching out the hours of recumbence to their last possible extent, is a forecast of the last wearisome day that lies before me, with a secret wish that I could have lain on still, or never awake.

"Life itself, my waking life, has much of the confusion, the trouble, and obscure perplexity of an ill dream. In the daytime I stumble upon dark mountains.

"Business, which, though never particularly adapted to my nature, yet as something of necessity to be gone through, and therefore best undertaken with cheerfulness, I used to enter upon with some degree of alacrity, now wearies, affrights, perplexes me. I fancy all sorts of discouragements, and am ready to give up an occupation which gives me bread, from a harassing conceit of incapacity. The slightest commission given me by a friend, or any small duty which I have to perform for myself, as giving orders to a tradesman, &c., haunts me as a labour impossible to be got through. So much the springs of action are broken.

"The same cowardice attends me in all my intercourse with mankind. I dare not promise that a friend's honour or his cause would be safe in my keeping, if I were to be put to the expense of any manly resolution in defending it. So much the springs of moral action are deadened within me. My favourite occupations in times past now cease to entertain; I can do nothing readily; application for ever so short a time kills me. This poor abstract of my condition was penned at long intervals, with scarcely any attempt at connection of thought, which is now difficult to me.

"The noble passages which formerly delighted me in history or poetic fiction now only draw a few weak tears allied to dotage. My broken and dispirited nature seems to sink before anything great and admirable.

"I perpetually catch myself in tears for any cause or none. It is inexpressible how much this infirmity adds to a sense of shame and a general feeling of deterioration.

"These are some of the instances concerning which I can say with truth that it was not always so with me.

"Shall I lift up the veil of my weakness any further? or is this disclosure sufficient?

"I am a poor, nameless egotist, who have no vanity to consult by these confessions. I know not whether I shall be laughed at or heard seriously. Such as they are I commend them to the reader's attention, if he finds his own case any way touched. I have told him what I am come to. *Let him stop in time.*"

These are fearful and affecting statements, showing the sad effects of a lapse into bad habits.

The influence which tobacco has had over all classes of society in various climates is truly astonishing. "In all places where it has come," observes Sir Hans Sloane, "it has much bewitched the inhabitants, from the polite European to the barbarous Hottentot." According to Boerhaave, "When this celebrated plant

was first brought into use in Europe it was cried up as a certain antidote to hunger, but it was soon observed that the number of hypochondriacal and consumptive people was greatly increased by its use."

The ordinary and general effects of tobacco are, whether by chewing, smoking, or snuff-taking, weakness, pain, and sinking at the stomach, dimness of sight, dizziness and pain in the head, paleness and sallowness of countenance, feebleness of the voluntary muscles, tremulousness in the hands, weakness or hoarseness of voice, disturbed sleep by startings, and a sense of suffocation, nightmare, epileptic or convulsive fits, confusion of mind, peevish and irritable temper, instability and laxness of purpose, depression of spirits, melancholy and despondency, partial, and sometimes entire and permanent insanity.

Tobacco destroys the healthful properties of the blood. It enters into the secretions of all the glands. Hence are often found in tobacco chewers and smokers diseases of the liver, kidneys, and other glandular organs. The secretions of the mucous membrane which lines the mouth, stomach, and bowels, are often severely affected by it; so that in this way, together with its prostrating influence on the nervous and muscular coats of the stomach, and its agency in producing torpidity of the liver, the very worst forms of dyspepsia have been created.

The efficacy of tobacco in preventing contagious disorders is more than doubtful. According to some statistics by Dr. Mussey it appears that in 1833 Havanna, with a population of 120,000, lost in a few weeks 16,000 persons by the cholera. In Havanna the daily consumption of cigars by all classes of the community is immense. It is stated that in Campeachy (Mexico) about one quarter of the population died of the cholera. Here, it is said, "everybody smokes cigars," even children of six years old.

"Even," observes Dr. Good, "in the form of snuff, tobacco has not unfrequently been found to produce

indigestion ; partly, perhaps, from the paralysis of the olfactory nerves, in which the stomach participates by sympathy, and partly from the portion of tobacco that is constantly passing into it from the nostrils."

"I have found," adds Dr. Cullen, "all the symptoms of indigestion produced by snuffing, and particularly pains of the stomach occurring every day. The dependence of these upon the use of snuff became very evident from hence—that upon an accidental interruption of snuffing for some days these pains did not occur, but upon a return to snuffing the pain also recurred, and this alternation of pains of the stomach and of snuffing having occurred again, the snuff was entirely laid aside, and the pains did not occur for many months afterwards, nor, so far as I know, for the rest of life."

The objections to taking snuff are thus stated:—It is an uncleanly habit, vitiates the organs of smell, taints the breath, ultimately weakens the faculty of sight by withdrawing the humours from the eyes, impairs the sense of hearing, renders breathing difficult, depraves the appetite, and, if taken too copiously, gets into and affects the stomach, injuring, in a high degree, the organs of digestion, and producing a host of nervous disorders, such as tremors, palsy, and even epilepsy and sudden death. With an enfeebled state of the brain and nervous system come loss of memory and great inequalities of temper and manner. Cancer on the upper lip or the sides of the nose sometimes occurs to snuff-takers.

The pernicious effects of the tobacco are not unfrequently heightened by the addition of other noxious and poisonous ingredients mixed with the powder, in order to add to the weight of the snuff, or to make it more stimulating. To accomplish the first intention, salt or red lead (which last also improves its colour), and for the second purpose powdered glass, sal ammoniac, Cayenne pepper, and even more offensive articles, are added.

It is in vain that the advocates of snuff-taking allege that they become accustomed to its use, and do not experience those unpleasant symptoms, such as giddiness and sickness of the stomach, and great languor and prostration, under which beginners at times suffer. These old snuffers, when ruffled or disturbed from any cause, consume a much larger quantity than usual of their powder, and suffer accordingly.

No public speaker, teacher of languages, or professional singer ought to indulge in snuff-taking, as it infallibly injures articulation, and weakens the force of the voice, by not permitting a free exit for the air from the lungs, which, of course, it must cramp and confine in the action of breathing. A maiden lady, who desired something to comfort her for the want or the loss of suitors, asked a physician whether snuff was injurious to the brain. "No," he answered, "for nobody who has any brains ever takes snuff."

Among the bad habits to which many young persons, chiefly females, are addicted, we may mention *novel reading*. The influence of the mind in producing diseases of the body is well known. Depress the mind by grief, or fear, or despondency, and you will infallibly produce a ghastly train of nervous diseases, accompanied with disorders of the liver and the stomach. It is well known that novels have the effect of agitating the reader's mind both during and after perusal; and the more interesting the work is, the more injurious is this effect. Dr. Mason Good observes that he had several patients, chiefly ladies, who had spent their nights and days over captivating novels, till they gave evident proofs that they were of a mind occasionally deranged. In such cases there are usually headaches, indigestion, costiveness, wandering nervous pains, flatulence, ringing in the ears, flushings in the face, alternate sensations of burning and coldness in the hands and feet, and all the numerous attendants of nervous derangement.

The first part of the cure is, of course, to give up

novels for sober history ; and recourse, where the bane has sunk deeply, must be had to medical treatment.

Another circumstance indispensable to the cure is going early to bed, never, we should say, later than ten o'clock, and rising early—not later than six or seven o'clock, and, when the weather will permit, taking a walk or a ride of at least a mile before breakfast.

Among the worst of bad habits we may class indolence. To the state of listlessness and irresolution invariably attending upon this vice the most dreaded evils often owe their origin. Spectres haunt the distempered imagination. Refuge from these is sought in strong excitement, which is succeeded by moping, nervous melancholy. Indigestion, with its train of woes, is induced by too great attention to the only regular business of the day—eating and drinking. When the sufferer is doomed to linger on in his long disease he can know neither pleasure nor repose. The full colouring and contrast which labour and useful occupation give to the picture are wanting, and there remains but an unmeaning and insipid blank. Sleep flies his pillow, and enjoyment from the most alluring of his pastimes. A mere passenger in the ship of life, his sickly existence is passed in disgust and nothingness.

Out of the many thousands who die annually from consumption we may safely assert that no inconsiderable portion can date their complaints from attending *crowded assemblies*. A few words of caution may prove valuable to such of our readers as frequent balls, parties, routs, &c. It may be premised that cold will do no harm if persons are not improperly exposed to it. Cold will injure the feet, but it will not injure the hands ; it will injure the stomach, but it will do no harm to the face. The danger, then, lies in being heated to perspiration in the theatre, ball-room, &c. ; that the feet be exposed to some cold stream of air, or become cold from damp ; and that thirst may induce to eat ices, or take

a draught of anything cold. This rashness has often caused death, and frequently laid the foundation of a lingering and fatal illness. The reason of such consequences is to be found in the current of the blood. Cold applied suddenly to the stomach, in the same way as a blow on the stomach, makes the blood-vessels contract, and expel the blood in a gush to the heart and lungs. If they are not strong enough to withstand the flood there is instant suffocation. If the patient escape this there is every chance for the increased flow of blood causing inflammation of the lungs and the heart; or, if there be weakness there, bringing on cough and decline. Similar, though not so sudden effects arise from cold or damp feet, chiefly through their sympathy with the bowels and head. Mark this distinction: when cold is applied to the hands or the face the constant exposure of these to the open air renders the effect much less sudden, and though it do check perspiration, and cause the blood to recede, yet all this is so gradual and gentle that not only does no injury follow, but it brings with it great benefit and comfort.

Avoid while you are warm all ices and cold liquors, as you would avoid poison and pestilence; and particularly take care of cold feet, cold draughts of air, or going suddenly into a cold from a hot room in a state of perspiration.

There is no doubt that practising or performing much on musical instruments is extremely weakening and injurious to the nerves, and sometimes lays the foundation for trembling hands, shaking palsy, incurable nervous headaches, pains, tic-douleureux, and even disordered mind and insanity. Steadhal, in his "Life of Rossini," says, "Dr. Cottugno, the principal physician at Naples, told me at the time of the extraordinary success of Rossini's opera, 'Moise,' that he had more than forty cases of brain fever or violent convulsions, with which young females dotingly fond of music were seized, chiefly from the superb

change of tone in the prayer of the Hebrews in the third act."

Excess of labour in any pursuit is a dangerous habit, tending to shorten life and embitter its close.

Paralysis at fifty comes like the mesne process upon the victim of commercial enthusiasm, and either hurries him off to that prison from which there is no liberation, or leaves him for a few years organically alive to *enjoy* the fruits of his labours. A life thus spent is a mere fragment of what it ought to be. The means of obtaining pleasure have swallowed up the end. The glorious face of nature, with all its sublime and beautiful alternations; the delights of social life; the pleasures arising from the exercise of the finer feelings and the cultivation of the intellect; all that higher class of gratifications which nature has designed a moderate labour to place within the reach of *all* her creatures, have been lost to such a man.

By far the most general primary cause of diseased action of the brain, and therefore of insanity, is over-exertion. When the brain has been for too long a time intensely employed upon any subject it is thrown into such a state of excitement that its operations are no longer under the control of the will; the incipient stage of insanity then commences, a superabundant flow of blood is propelled to the head, irritation and want of sleep are the immediate consequences, and, if proper treatment be not applied, inflammation is the natural result. This diseased action, if unchecked, produces diseased organisation, or that chronic state of insanity which is attended by congestion of the vessels, the opacity of the membranes, and serous effusion under them and in the ventricles, so generally found in the heads of those who have been insane for any length of time.

To this over-exertion we must attribute an immense number of cases arising from moral causes, for, as the brain is the organ of the mind, not only will an undue exertion of the sentiments and the passions cause this

irritation, but too continuous thought on subjects difficult to be comprehended, or even on those which are within the grasp of our understanding, when they interest us too deeply, is quite sufficient to produce such over-excitement.

There is no doubt that many of the depraved habits of the working classes may be traced to a chain of evils which poverty may forge and lengthen.

"I am convinced," observes Dr. James Johnson, "by long and careful observation, that the mental anguish of many of these poor men and women is out of all proportion greater and more intolerable than any physical sufferings they may have to endure. True it is that their bodies are often worn down by hard labour, poisoned by impure air, and exhausted by want of proper food; but worse than all this is the black despair which settles upon them when they find themselves beneath a thick cloud of sorrows, or surrounded by a hopeless entanglement of debt and difficulties, from which they see no way of escape, with, perhaps, no one to lend them a helping hand, or to speak a word of encouragement or sympathy. What wonder is it that in circumstances so cheerless and so desperate, men, and, alas! women too, many of whom have grown up in utter ignorance of the very rudiments of Christianity, should fly to the gin shop to escape from their wretched homes, to drown in the oblivion of drunkenness the cares and troubles which daily become more intolerable, or to seek temporary relief from the physical exhaustion, occasioned by excessive labour, in the impure and overheated atmosphere of their workshops!

"It appears to me that in this state of things we have a sufficient explanation of the necessity for a continual increase of prisons and lunatic asylums, institutions which it would be well that we should all learn to look upon as monuments of neglected duty. We may be well assured that if we were more diligent in our efforts to educate the young, and to visit and relieve the

sick and the distressed, we should less frequently be called upon to erect costly buildings for the reception and maintenance of criminals and lunatics. Crime and sickness are very expensive, and the principles of economy, no less than the precepts of Christianity, instruct us that we should act wisely if we did more to prevent these evils."

CHAPTER XIII.

BODILY DEFORMITIES: THEIR PREVENTION AND CURE.

"Poor race of men! said the pitying spirit,
Dearly ye pay for your primal fall;
Some flowers of Eden ye still inherit,
But the trail of the serpent is over them all!"

MOORE.

In most cases of bodily deformity the evil may be traced to the period of childhood, when the bones are soft and flexible, and are easily, unless prevented, led into distortion. Mr. Hare, in his excellent work "On the Curvatures of the Spine," justly remarks that the common origin of such irregularities of form occurring at an early period of life, in proportion, therefore, to the delicacy of the infant will be the care required for its rearing. Much has often been effected in this way by constant and persevering attention; and many weakly and unpromising children have, by judicious management, been raised to maturity, and have passed through life in the enjoyment of a considerable share of health and vigour.* *A finely formed body is favourable to the*

* "The age of infancy," says Tissot, "is consecrated by nature to those exercises which fortify and strengthen the body."

"The first epoch of life," remarks Sinibaldi, "to the age of seven, ought to be entirely consecrated to the perfect development of the organisation of children, and by the aid of physical education to render them as healthy, robust, and strong as the nature of man will permit."

enjoyment of sound health. Every one is struck with the commanding figure, the graceful appearance, of a person so formed; but few inquire into the reason why all are not so gifted. If parents would have their offspring free from personal defects—if they would have their limbs moulded into the form indicative of grace, activity, and strength, they must commence their attention to them from the time of birth; and although they may not always succeed in securing for them the highest state of physical perfection, yet they will generally be able to effect such an improvement in their constitution as will form the basis of future health. Children should not be too early set upon their feet, but should rather be placed on their backs upon the floor, that they may exercise their limbs with freedom: the former practice is a frequent cause of malformation in the lower extremities. *Especial care should be taken* that the spinal column, so tender in young children, may not take a wrong direction. The manner in which a child, and especially a delicate one, is suffered to sit on the nurse's arm, should be carefully attended to, and, until it has acquired sufficient strength to keep itself erect, its back ought to receive proper support. By being suffered to shrink into a crouching posture, with the head and shoulders inclining forwards, and the back projecting, a bad habit is soon contracted, which often leads to distortion of the spine. Neither is it in the arms alone that this attention is required; the effect is not less injurious if the child be suffered to sit long in a chair, as when fatigued it will naturally adopt that position which at the moment affords most ease. Here it may not be irrelevant to notice the very common and reprehensible practice of raising a young child by its arms in such a manner that the sides of the chest being pressed by the hands, or rather, the knuckles of the nurse, its cavity is diminished, the sternum, or breast bone, pushed out, and that deformity produced in delicate children commonly called "pigeon breasted."

In all cases where a child is delicate and puny, and

supposed to suffer under the effects of diseased organisation, when the symptoms are such as denote weakness of the back, and consequent incapacity to support the weight of the head and shoulders, it ought without delay to be minutely examined.

Mr. Hare, who has made the subject of bodily deformities his particular study, makes the following excellent remarks on the absurd and dangerous habit of making what the ladies credulously term a *fine figure* :—" That women should experience a feeling of support from the use of *stays*, after wearing them from early childhood, admits neither of doubt nor surprise ; the only wonder is that they should feel comfortable without them during the hours of repose. Our promenades, public streets, and places of fashionable resort afford abundant evidence of the sad effects arising from the almost universal prevalence of this baneful practice. The foolish notion that a woman is more beautiful with a remarkably small waist ought long ago to have been exploded : as well might we admire as beauties the flattened heads of some tribes of Indians, or the extremely contracted feet of the Chinese. Genuine taste admires no such eccentricities. Modern stays are constructed with so little attention to the form of the body, that the pressure is the greatest upon the lower part of the chest, which is naturally the widest, whilst they have the most freedom at the upper part, where its diameter is the smallest, thus, in effect, inverting the order of nature, and causing a complete transformation of this important portion of the body by making its base uppermost, and its apex downward ; they are also made so long as to cause injurious pressure on the pelvis, the crest of the ilium being not unfrequently turned inwards.

" *The evils arising from tight lacing are numerous and appalling.* By the pressure of the stays the functions of the vital organs are injured, and the whole frame impaired ; the bones of the chest being contracted, prevent the free action of the lungs ; the blood, not being suffi-

ciently oxygenised by respiration, becomes deteriorated, and, consequently, the various systems of the body suffer either in structure or function. Palpitation of the heart, increased circulation, and difficult respiration are usual symptoms attendant on chronic cases. *The pressure and confinement of stays also produce great derangement of the functions of digestion*, preventing the stomach from dilating on the reception of food, and also the proper peristaltic motion of the intestines, and, in some extreme cases, entirely changing the form and position of the viscera, which are not unfrequently pressed down to the lower part of the abdomen. Hernia, also, there is reason to believe, is often produced by this improper pressure.

"As the bones and muscles continue to increase in growth until the period of puberty, they are, by the continual pressure and rigidity of stays, which scarcely allow of lateral, or, indeed, any other motion, prevented from becoming fully developed; and the pressure is not unfrequently so great as to displace the bones from their natural position, the sternum being in some cases forced inwards, in others the reverse, whilst the conical form of the chest is inverted."

The author of the above observations made repeated measurements, with a view to compare the circumference of the waist and the width of the stays of a great number of females, and has found so great a difference between the former and the latter as to be convinced of the serious injury which must result. This is an experiment which all parents have it in their power to try, and the correctness of which they can ascertain. Need we, then, be surprised that the female figure is so frequently and so lamentably deformed? Rather ought it to excite our astonishment that so many, under such untoward circumstances, should escape the consequences.

Some unfortunate sufferers, by placing soft pads in the lateral curve, frequently pass years without its being known that such distortion exists; but their lives under these circumstances must be spent in a state

little short of misery, on account of the languor, debility, and mental as well as bodily suffering which they endure.

Equally, perhaps more objectionable than stays, are the various instruments made use of; as, for instance, backboards and braces, education chairs, and other contrivances to amend or protect the shape, which, so far from improving, they tend ultimately to destroy; indeed, all such inventions, so far from being useful in the prevention of the deformity, are absolutely injurious.

Another serious result arising from the use of stays and other restraints is explained by Mr. Walker, who states that the use of these instruments of torture, "causing debility of many of the muscles, naturally induces the use, in the particular pursuits of education or the common acts of life, of other muscles, of which the power is less impaired, but which are less favourably situated for the purpose in view. This is the great cause of wrong positions of the figure, and all their fatal consequences."

In addition to the arguments we have used against tight lacing and stays, we may assert (and here, perhaps, the ladies will heed us) that the countenance of a person addicted to this custom soon loses its attractive beauty or comeliness. The effect of a band drawn round the chest so as to prevent its full expansion at the moment when we inspire, or take in air to breathe, is necessarily impeded freedom of the circulation of the blood, and especially of that in the superficial vessels under the skin. Of course the complexion suffers, it being at first of a deep unnatural red, and afterwards of a pallid and dingy hue. The features are also in a measure distorted, for unavoidably, when the breathing is irregular, the nostrils are thrown into more frequent and hurried action, or, if the air be inhaled through the mouth, the lips contract unpleasantly, the eyes at the same time have a staring expression, and a fulness, if not actual projection, all foreign to the natural countenance. If these are the effects of a

single band or girth round the waist, how much greater must be those from inclosing the entire chest, and even the trunk of the body, in tight corsets! The unavoidable discomfort, if not actual pain, produced by this means, necessarily gives to the wearer an air of constraint, ill disguised by an occasional formal smile, or a forced tittering laugh. *A female tightly laced will have, in despite of all her exertions to the contrary, an affected, if not suffering countenance.* She cannot possibly, in this state, exhibit that lively play of features, and ingenuous expression of face, which she could do without effort at another time, as when in her light morning dress for example. Every change of emotion, however transient, is promptly followed by a change in respiration, marked either by more frequent movements or greater expansion of the chest; but how can an emotion be indulged in, or how receive its appropriate expression, if the sides of the chest be pressed in as if with iron? If the feeling be expressed in words without its emanating from the mind, or if its expression be smothered, the effect is either ridiculous or painful. Even the sigh which follows suspended attention and forgetfulness to breathe, as when a person is in a reverie from pleasurable contemplation or from grief, must, with the corseted lady, be broken into half sobs or panting. It is very difficult, if not impossible, for her to dilate her chest sufficiently to allow of that full and rather hurried respiration which constitutes sighing.

There is another kind of constraint to which the countenance is subjected in youth of both sexes, but more especially in females; it is that imposed by the artifices and absurdities of fashionable life, in which it is thought unbecoming to display any vivid emotion, or to be betrayed into the slightest deviation from apathy to all surrounding objects and persons. The features are required to be of as monotonous an expression as possible, and this implies a forced and prolonged inactivity of the muscles of the face, which, by their

movements, give rise to its expression, and which by long disuse become, finally, as powerless in the performance of their peculiar function as are the muscles of limbs which do not move of theirs. We can readily conceive how unfavourable this formality and final tameness of feature must be to beauty. We suspect, however, it is in a measure the consequence of the vicious style of dressing, by which, as the chest is not allowed to expand, nor the limbs to move with the freedom required for appropriate gesture, the movements that ought to accompany mental emotion or excitement cannot be executed. Of course the emotion itself, no matter of what kind, is irksome to the one who indulges in it, and painful or ridiculous to the person who is a witness of it. Hence a quiescence of feature, and final apathy of expression—an almost waveless calm, which, with a large fashionable tribe, is thought so becoming. But not only is beauty injured by such unnatural constraints, the health also suffers from this imperfect discharge of important functions, as we see in the disorders of the brain, heart, and lungs, to which the votaries of fashion are often victims.

Mr. Donald Walker, the author of several works on the physical education of the young, and a very competent authority in such matters, observes that "*few young women are exempt from some degree of deformity. This always increases with age, unless means of prevention are either intentionally or accidentally employed. In order to employ such means, innumerable parents have watched with anxiety the ostensible operation of the causes producing deformity in their daughters, and especially the greatest and most universal of deformities. Few have imagined that these causes are almost as palpable as their effects—that they are their peculiar modes of performing nearly every act of their lives.*"

The conclusion to which Mr. Walker arrives is, that the one-sidedness with which almost all the acts of life are performed is the general cause of the greatest and

most universal deformity, and that its prevention requires an equal and similar use of the other side.

Mr. Walker gives a few of the most remarkable instances of the *wrong positions resulting from debility, or from the improper employment of the muscles* in such cases.

In regard to *standing*, young people compelled to assume that attitude during a long lesson relieve the muscles that maintain the body erect by balancing themselves on one leg, which is generally the left, in order that the more active right may be free. This throws out the hip, hollows the body, and depresses the shoulder of the side on which they stand. If this be the left it raises the right shoulder, or removes it farther from the spine, and consequently makes it appear larger.

By sitting always on the same side of the fire or window persons lean on one side, and thereby depress the shoulder of that side, and raise the opposite one. Girls in sitting contract a habit of balancing the body upon one hip, and of throwing on it the weight of all the parts above it, by drawing the spine to that side, and leaning the head and neck to the other. This raises relatively the shoulder of the side on which they rest, as is seen when they stand erect, and carefully retain the position of the trunk.

In playing the piano a common chair affords the best seat. The music stools are generally not firm, and consequently annoy the performer, and prevent that ease in the execution of difficult music which alone can render it effective. The high-backed school chairs are not to be recommended, as they give a habit of leaning against something, and the want of this is felt when the pupil is obliged to use another seat. The performer should be seated high enough to allow the elbow, wrists, and knuckles of the fingers to be on a level. The feet must rest on the ground. If children are not so tall that their feet may reach the ground it is proper to have a board attached to the chair for the

feet to rest upon, and the pedal may be raised by a piece of wood being screwed upon it, to bring it to a level with the board.*

* We quite agree with the following observations of Dr. James Johnson on *the mania for music now prevalent* :—

"The excess of music injures the health, and even curtails the lives of thousands and tens of thousands annually of the fair sex, by the sedentary habits which it enjoins, and the morbid sympathies which it engenders. The story of the syrens is no fable—it is verified to the letter!

'Their song is death, and makes destruction please.'

"Visit the ball-room and the bazaar, the park and the concert, the theatre and the temple—among the myriads of young and beautiful whom you see amusing themselves you will scarcely see one in the full enjoyment of health.

"*The length of time occupied by music* renders it morally impossible to dedicate sufficient attention to the health of the body or the cultivation of the mind. The consequence is that the corporeal functions languish and become impaired—a condition which is fearfully augmented by the peculiar effect which music has upon the nervous system. It will not be denied that every profession, avocation, or pursuit modifies in some degree the moral and physical temperament of the individual. No art or science that ever was invented by human ingenuity exerts so powerful an influence over mind and body as music. It is the galvanic fluid of harmony which vibrates on the tympanum, electrifies the soul, and thrills through every nerve in the body. Is it possible that so potent an excitant can be daily applied for many hours to the sensitive system of female youth without producing extraordinary effects? If music have the power

'To soften rocks and bend the knotted oak,'

is it not likely to subjugate the imagination and shatter the nerves? All pungent stimuli produce inordinate excitement, followed in the end by a train of evils. Everything that merely delights the senses without improving the understanding must come under the head of sensual gratifications, which tend, by their very nature, to excess. Music, like wine, exhilarates in small quantities, but intoxicates in large. The indulgence in either beyond the limits of moderation is dangerous.

"One injurious consequence of this inordinate love of music is certain, namely, the length of time absorbed in the pursuit prevents the proper acquisition of useful knowledge. If some of that time which is spent on the piano, the harp, and the guitar were dedicated to the elements of science, or, at all events, of useful information, there would be better wives and mothers."

Writing being a frequent act, which the right arm can alone perform, and in which the right shoulder is always raised, it is one of the most injurious, and tends greatly to throw the lateral deviation towards the right

A fertile source of bodily deformity and infirmity has been ably adverted to by Miss Martineau.

"I believe," observes this lady, "it is now generally agreed among those who know best, that *the practice of sewing has been carried much too far for health*, even in houses where there is no poverty or pressure of any kind. No one can well be more fond of sewing than I am; and few, except professional sempstresses, have done more of it; and my testimony is, that it is a most hurtful occupation, except where great moderation is observed. I think it is not so much the sitting and stooping posture, as the incessant monotonous action and position of the arms, that causes so much wear and tear. Whatever it may be *there is something in prolonged sewing which is remarkably exhausting to the strength*, and irritating beyond endurance to the nerves. This is only where sewing is almost the only employment, or is carried on for several hours together. When girls are not so fond of sewing as I was in my youth, and use the needle only as girls usually do, there is no cause for particular anxiety; but the mother should carefully vary the occupations of a girl disposed to be sedentary. If pleasant reading or conversation can go on the while it is well. The family meals too, and other interruptions, will break off the employment, probably, before it is gone too far. But if there is the slightest sign of that nervous distress called the 'fidgets' (which truly deserves the name of 'distress'), or any paleness of countenance, lowness of spirits, or irritability of temper, there is reason to suppose that the needle has been plied too far, and, however unwilling the girl may be to leave work which she is bent upon finishing, it is clearly time that she was in the open air, or playing with the baby, or about some stirring business in the house. I have always had a strong persuasion that the greater part of the sewing done in the world will ere long be done by machinery. It appears much more easy than many things that are done by machinery now; and when it is considered how many minute stitches go to the making of a garment, it seems strange that some less laborious and slow method of making joins and edges should not have been invented before this. Surely it will be done in the course of a few generations; and a great blessing the change will be to women, who must, by that time, have gained admission to many occupations now kept from them by men, through which they may earn a maintenance more usefully,

shoulder. To remedy this tendency it has been recommended to equalise the shoulders by placing a book under the left elbow. If, however, the general position were not corrected, no means would avail.

In *riding on horseback* the body is somewhat twisted, and the right shoulder is apt to be thrown upward, increasing apparently the tendency to deviation in that direction. This tendency, however, will in general be only apparent; for, while the right shoulder is thrown upward, the right haunch is still more thrown upward, and the whole of the right side is shortened; so that were the lady to be placed on her feet, extending only her limbs, and holding her body in the same position as on horseback, with the right side contracted, the right shoulder would, in reality, be depressed, and the tendency to deviation would be to the left side. Thus riding on horseback might also, perhaps, be employed as counteracting the far more general tendency to raise the right shoulder, which is produced by the more frequent and longer continued acts of writing, drawing,

and with less sacrifice of health than by the present toils of the sempstress. The progress made in spinning, weaving, and especially knitting by machinery, and in making waterproof cloaks and other covering without the help of the needle, seems to point with certainty to an approaching time when the needle will be almost superseded. With this, and the consequent saving of time, must come a greater abundance of clothing and an accompanying cheapness, which will be a great blessing to a large class by whom good and sufficient clothing cannot now be obtained. Meantime, our ways are improved by the turning over of some of the work to machinery. *The sewing schools* to which young ladies were sent in the last century, to sit six hours a day on hard benches, too high for their feet to touch the ground, compelled to hold themselves upright, and yet to pore over fine cambric and linen, to do microscopic marking and stitching, are heard of no more. In their day *they bent many spines, spoiled many eyes, and plagued many a young creature with backache for life*; so we may rejoice that they are gone, and must take care that none of their mischief is done at home, while all really useful good sewing can very easily be taught there."

&c., and by the perpetual employment of the right hand in all the acts of common life, which compels the greater or less liberation of the shoulder from the corset or stays, its increased development, and the almost universal tendency to right-sided deviation and deformity.

In bed it is better to lie on the back than on one side, when, if there be no disease, and if food and exercise have been duly regulated, there will be no difficulty of breathing, nor any other unpleasant consequences. Lying on the side turns one knee excessively inward; whereas, in lying on the back, both knees are turned outwards.

Camper observes "*that machines of every description for the prevention of deformity, or for the cure of bad habits, should be avoided:*" they are at best but very inefficient substitutes for the means provided by nature. In young persons in whom we may wish to correct round shoulders, or a habit of stooping, we can obtain our object, and at the same time improve the general health and strength, more by the superintendence of exercises and amusements, so as to make a moderate demand for muscular exertion on particular parts of the body, than by the use of mechanical contrivances.

Amongst the numerous occupations tending to distort the spine may be mentioned those of watermen, waiters, harp-players, porters, and the London milkmen; to which may be added unequal lengths of leg, wooden legs, crutches, &c. In almost all cases of lateral curvature resulting from mechanical causes, the altered form of the spine arises from the necessity that exists for the maintenance of equilibrium in all parts of the body under every change of posture, or application of extraneous force. All attempts to restore the figure by any other method than that of counteracting the disturbing force that has given rise to the deformity must, therefore, necessarily fail.

Milkmaids, who are accustomed to carry a pail nearly full of milk on their heads, and are proverbially upright,

have been adduced by different authors as illustrations of the good effects produced by this method ; but the real benefit is undoubtedly owing, not to the circumstance of carrying the weight, but to the necessity of maintaining a certain attitude, in order to prevent its falling.

Rowing has been long observed to be amongst the occupations tending to distort the spine. It is reported that the strongest and best proportioned men, after having been some time engaged as bargemen in the royal navy, become distorted. The act of rowing is performed by the alternate flexion and extension of the body ; the arms are called into violent action, which tends to curve the trunk forwards ; but the muscles which extend the trunk oppose the flexure of the spine, and draw the body backwards. These actions tend to exercise and strengthen the muscles of the back, but the compression exerted on the anterior portion of the intervertebral substances and bodies of the vertebræ causes, after a time, a partial absorption of those parts, and the spine becomes bent forwards in the mesial plane.

CHAPTER XIV.

PHYSICAL TRAINING OF YOUTH.

"I love to see a nimble activeness
In noble youth; it argues active minds
In well-shaped bodies, and begets a joy
Dancing within me."

NABB.

"Lusty youth is the very May-morn of delight."
GASCOIGNE.

"Theirs buxom health of rosy hue,
Wild wit, invention ever new,
And lively cheer of vigour born."

GRAY.

THE foundation of a robust and healthy constitution is frequently laid in early youth, when both the mind and body are alike open to every impression. The weak and puny child has but too frequently its habits confirmed by the indulgent and anxious care of a too fond parent, terrified at the least exertion destroying that life, the preservation of which probably forms the only link that binds her to the world. It should be remembered, however, that children are never so healthy, nor so likely to justify the hopes and anxieties of parents, as when allowed the free use of their limbs, and are permitted to indulge in that buoyancy of spirit natural to their age.

In proportion as the child advances in age will be his desire for employment: hence the multiplication of his amusements. Every proper opportunity, therefore, should be given for the due exercise of both body and mind, but neither should be too much exercised. Care should be taken at this period to provide such

employment or amusement as shall exercise the arms as well as the limbs—of this kind are battledoor and shuttlecock, playing at ball, &c.; for the period is fast advancing for the completion of the human body, and its proper development very much depends upon uniform exercise. Therefore all such employments as but partially bring into action the muscular system should be changed for those which will call into requisition every part of the body.

After selecting proper games and exercises for children, constant care should be taken that none are indulged in to excess, for the most innocent and amusing, if carried too far, may become a source of extensive mischief; therefore amusements of every kind may be converted into evils.

Again, in *choosing amusements* let them be well adapted to the individual for whose benefit they are intended. Thus every boy cannot become a good fencer, a good dancer, a good runner, and a good leaper; yet he may excel in some one of them. His disposition and skill for any particular species of amusement should be studied, and he should only be kept at such as he has a chance of not falling below mediocrity. If this be not attended to he becomes listless and supine, and receives an injury from that which was intended for his benefit, by his self-love being mortified by the superior skill and address of his companions.

All hazardous experiments of skill or strength should be peremptorily forbidden. All attempts at posture-making are highly dangerous, and should not be reckoned among the proper exercises of youth. Every violent exertion must necessarily be attended by a proportionate strain upon some one part or other of the body, therefore it should be instantly discountenanced; such as jumping from great heights, leaping over elevations, lifting great weights, &c., for in every exertion of this kind the most serious risks are run of producing a disability for life. It is by these hazardous experiments that "ruptures" are so frequently produced.

We should, nevertheless, be careful that we do not produce timidity by a too indiscriminate reprehension of amusements that may be abused. Children should be permitted to leap, or climb, or run to a certain extent, but where, under ordinary circumstances, no danger can arise. At the same time they should be made acquainted with the mischief which may follow any of these amusements when carried to excess, or when improperly performed.

Very often at this period of life *strong dispositions are discovered for mechanical employments.* When these are of a decided character they should be encouraged; for, though the individual may never follow the art his early predilection led him to select, yet the dexterity acquired in his early years may essentially serve him in some future business of life; thus a surgeon has been often benefited by his knowledge of the mode of handling tools, &c. Therefore a boy may often safely and profitably be indulged in the use of sharp tools, though it may occasion an anxious mother many heartaches during his initiation into the mode of employing them.

One general, and we may add essential rule should ever govern youth in their plays and amusements, which is, never to engage in such as shall require much exertion after a full meal, as the worst consequences may follow a neglect of this caution.

It has been truly said that *there is a graceful way of doing most things*; and it might have been added that what is commonly practised is generally most slovenly performed. The awkward use of the hands and feet, probably, is the best illustration of this position; for, though all persons walk and use their hands, few do so with propriety, which has, it may be, arisen from some bodily deformity, and, when that is not the case, is the consequence of a slovenly habit. There are some people who walk in a waddling way, which manner of walking, when it does not proceed from a bad habit, or some accident or other, is the effect of a weakness of

the haunches ; for, as they serve to bind the lower extremities with the trunk, if this binding is weak there must necessarily be a sort of lameness on both sides, and this occasions the waddling we now speak of.

A great many young people are liable to this deformity, and frequently it continues with them for life. It is commonly owing to the negligence of nurses and servant-maids, the most part of whom allow the children committed to their care to walk of themselves, and without help, before those parts which ought to support the weight of their bodies have acquired sufficient strength to perform that office aright.

When a child walks with his nurse she ought to take care not to go so fast as to make the child overstretch himself. The legs, when one walks, make a pair of compasses, as it were, which are more or less opened ; but the legs of a child being shorter than those of a person that has come to his full growth, the child, who would keep up with the pace of the grown person whom he is walking with, and, unluckily for himself, is proud that he can do it, opens the compasses of his legs beyond what their short measure conveniently permits, and this accustoms him to make long strides, and gives him this clownish, awkward way of walking, which he keeps after he is grown up, unless a great deal of care be taken in time to break him of this habit, which is no easy matter.

We may also advert to the injury which walking with such precipitation may do the child besides. This of itself may put them so much out of breath as to give occasion to some relaxation or rupture of the vessels in the thorax. How many children have become asthmatic, and how many have become consumptive, from this very cause !

There are others, again, who can neither walk nor stand with a tolerably good grace, and this alone is sufficient to make them overlooked in the eye of the world. La Bruyère says, on this subject, that a fool neither enters a room, nor retires, nor sits down, nor

rises up, nor stands, nor walks, like a man of parts. This maxim is, however, frequently false, but in general it is conformed to the manners of the times, and these we must think of if we would succeed in the world.

Mothers, while they teach their children to manage their bodies rightly, whether in walking, sitting, or standing, &c., should also give the youth to understand that all his care is nothing without qualities of the mind, and that they are foolish whose whole study is to use their legs handsomely.

Many parents neglect the physical education of their children, not so much from any carelessness in regard to the welfare of the latter, as from an actual misconception of the effects such education, when properly conducted, is calculated to produce, and from an ignorance of the signs by which perfect health and vigour are indicated. Thus by one class excessive fatness in an infant is looked upon as the perfection of health; by another, the amount of strong food it craves and consumes; others, again, can conceive of no more certain indication of health than the absence of positive disease, the early appearance of the teeth, or the premature efforts of the child to use its feet.

To correct such erroneous notions, and to exhibit the important results to be anticipated from a judicious attention to diet, exercise, and clothing during infancy and childhood, we present the following picture:—

The body of a child whose physical education has been properly conducted is straight and robust; its limbs are uniformly covered with flesh, and well-proportioned.

The texture of the flesh is firm; the colour of the surface fresh and rosy; and the body appears neither overloaded with fat, tumid, and spongy, nor parched and haggard, nor strikingly meagre. The skin is soft and flexible, and the complexion lively and fresh.

The stages of growth or development in the different organs take place in regular succession; no power, no capacity, outstrips another. The teeth do not begin too soon, nor at irregular periods; the child does not begin

to walk too early nor too late ; and the same is observable with regard to its speaking. Even the mental faculties expand themselves more slowly ; in other words, not until after the most important bodily changes have been effected. Every period from infancy to manhood proceeds in a natural and gradual manner, so that the child, in a physical point of view, remains longer a child. He does not mature into manhood before he has completed the proper term of youth ; and thus every stage, as well as the whole career of his existence, will be considerably prolonged.

The constitution, under such circumstances, becomes more hardy, and is less liable to be affected by the ordinary vicissitudes of climate and weather ; and, by its being possessed of a great degree of inherent vigour, the assaults of disease are more certainly repelled, the mental powers are also enabled to assume their greatest development, and the capability of enjoying all the rational pleasures of life is greatly increased.

Parents have it in their power, in almost every instance, to realise in their own children the preceding picture ; or, by their neglect or ignorance, to present in them its opposite.

We can conceive of few stronger inducements to filial gratitude than must exist in the bosom of that child who, in addition to existence, has received from the enlightened love of his parents the means of rendering such an existence a real blessing. "*I feel myself indebted for the health I enjoy to the love and foresight of a parent,*" is at once the most affecting eulogium and the most powerful of motives for continued love and esteem.

Medical men are unfortunately seldom called in the early stage of illness, which accounts for the fatal termination of many spinal deviations and other deformities to which young girls are liable. These maladies are often occasioned by the injudicious management of those who have the direction of children. The practice, for instance, of keeping them several successive hours without food until they have fulfilled some given

task is very reprehensible, and may prove detrimental to the physical powers. Making children stand any considerable time produces excess of fatigue, and were governesses aware of the consequences of these proceedings they would not occur, but they mostly originate in ignorance.

Could governesses be induced to reflect on the importance of physical education a great point would be gained. They would not make too early a call on the mental faculties of their pupils, but adapt study and recreation to the scholar's constitution. Repose of body and mind is equally essential to health. Both must be under good direction, lest they should degenerate into idleness. Such calls for exertion should only be made as the pupil is able to answer, but unfortunately this fact is seldom attentively considered.

The influence of attitude upon children is very great, and the figure may be considerably injured from inattention to their general position. An author who has written very ably on physical education attributes most deviations to bad habits. A vigilant governess leaves her pupils in good health, and free from bodily defects—is succeeded in the school-room by a person void of knowledge, who has, perhaps, never contemplated the injury arising from absence of attention. The neglected child is very soon the victim of this fatal ignorance. She contracts bad habits, is continually leaning on one side, standing on one leg, or seated at too high a table. The spine becomes affected, the health injured, and, when time is lost in endeavouring to counteract the mischief, the consequences are fatal to health.

We have often remarked that a want of attention to the physical condition of children in their earliest years has greatly retarded their growth and strength. Nurseries, in particular, are often deficient in the means of insuring health.

The room selected for the purposes of a nursery should be spacious, with a high ceiling, and perfectly dry; that is, it should not be exposed to the operation of any

cause that may render it damp, as on a ground floor, too much shaded by trees, or placed beyond the occasional influence of the sun. Its windows should be tight, and the walls dry; the floor should be of wood that will quickly dry after being wetted for the purposes of cleanliness.

The nursery should be so situated that the door or doors shall not open immediately on staircases, or, should this unavoidably be the case, the heads of the stairs should be secured by latticed half doors, and these so constructed, by having their bars placed perpendicularly, that the child cannot climb upon them, and thus defeat their object.

The windows should have cross bars placed before them; they may be five inches distant from each other, that the windows may be opened for the purposes of ventilation or air without apprehension, and without danger or accident to the child. They should have shutters, that the room may be darkened when the abstraction of light becomes necessary. The windows should not have curtains of a glaring colour, as the light will be increased thereby, and prove injurious to the eyes of young children.

If possible the nursery should consist of two rooms opening into each other, so that the children could retire to one while the other was ventilating, or being cleaned by washing or sweeping, which would contribute greatly to their comfort as well as to their health. They would also be removed from the dangers of damp, the inconvenience of dust, the risks from a cold stream of air whilst the room is being dried or swept, besides having an enlarged space for the exercise of their limbs. In a space so extensive as this they could improve their strength by engaging in many little sports which children are so ingenious to devise when they cannot, from the condition of the weather, take exercise in the open air.

Carpets in cold weather are decidedly useful if they are properly managed, that is, well shaken and aired every

week. By this means the dust is removed from them, and they have the advantage of becoming dry by exposure. We are sensible that several objections may be made against carpeting a nursery; as, the great quantity of dust they accumulate; their becoming often wet, without the chance of drying; their retaining grease so fixedly as not to be removed; their absorbing and then giving out a variety of impurities, &c. But, notwithstanding all these reasonable objections, we are persuaded that one single advantage which they possess in a nursery overbalances all that may be said against them, namely, their protecting the heads and limbs of children from injury when they fall.

We must, however, be understood to recommend carpets in cold weather only; for, so soon as the weather becomes sufficiently warm to do without fire, the carpet should be removed, and its place supplied by an even, well-stretched mat, or the floor may even be left bare; for at this period it is to be presumed children will be but little confined to the nursery, unless the state of the weather prohibits their enjoying the open air. This state of weather may consist in its being wet, too windy, or too hot.

The furniture of a nursery should be as little in quantity as convenience will permit, that the children may have the space that would be unnecessarily occupied by many articles, especially chairs and tables. It should, therefore, consist of the beds for the children and nurse, or we would rather say mattresses, as we are of opinion that feather beds should be driven from the nursery for the following reasons:—Firstly, they are too warm for the purposes of the best health, especially with feeble children, accumulating so much heat as to unduly stimulate the whole cuticular system, thus giving rise to unnecessary, nay, injurious perspiration. Secondly, the effluvium from feathers is extremely oppressive, particularly in warm weather, and to children of feeble lungs. Thirdly, they discharge a prodigious quantity of dust, intermixed with minute

portions of down, occasioning cough and other inconveniences. If it is objected that mattresses are too cold in our climate for winter, we would immediately obviate it by recommending the spreading of a blanket over the mattress, which will effectually remove the inconveniences complained of.

When practicable, children should sleep in separate beds, and these should be large, for it is injurious to have them cramped when they sleep. Children should never have more bedclothes spread over them than are sufficient to maintain a proper degree of warmth: if more be put upon them they become oppressed or perspire, both of which should be avoided.

It is in the nursery, in a great measure, that the habit of early or late rising is generated. This is a matter of much importance, and the greatest regularity should be observed that a proper one is formed. Children should, therefore, retire at a regular and sufficiently early hour, to insure their early getting up, for beyond a certain time sleep is injurious. It would, however, be difficult to establish a positive rule on this subject, as some children, like adults, will require more sleep than others. Children who exercise much will need more sleep than those who exercise but little, consequently they should not be confined to precisely the same number of hours.

All children are disposed to be early risers. This propensity should, therefore, be cultivated by permitting them to retire sufficiently early to bed, and after they are in bed they should not be allowed to keep each other awake by playing, thus depriving themselves of sleep. For the same reason no noisy employment should be permitted in the nursery, that the children may not be disturbed. Indeed, it would be best when children have attained their third year, or even before, that they should not be allowed even light in their rooms, that they need not unnecessarily be kept from sleep, as well as to prevent any apprehension from being left in the dark.

When children first awake in the morning, however early this may be, provided it be after daylight, they should be allowed to get up and be dressed ; for if this is not done, and they are forced to lie longer than is pleasant to themselves, they will become fretful and dissatisfied, or again fall to sleep. In either case a real evil is induced ; in the first the disposition of the child is injured, and in the second a habit of lying too long is generated.

In summer and winter some agreeable occupation should be the attraction to call them out of bed, rather than mere compliance with a strict rule. As soon as they rise they should have a portion of bread, or bread and milk.

The child may be considered as unwell from a permanent cause, or labouring under transient indigestion, who refuses such articles soon after rising. An hour is too long for a child, especially if at all delicate, to remain in the morning without food.

The interval of an hour should always be devoted to some play or active exercise. A breakfast of milk, or some of its simple preparations, should succeed. Whatever fluids are taken at breakfast should not be above a tepid warmth. In the summer season, when the body is not heated or in a state of perspiration, they should be of the temperature of the atmosphere. The previous exertion will prevent any one from sitting down chilly to the meal. Milk constitutes so important an article in the diet of children that every exertion should be made to insure a constant supply, and to obtain it perfectly pure.

After breakfast a moderate walk of half an hour may be allowed. Much exertion would have a tendency to disturb digestion ; but even considerable exertions, with pleasurable feelings, will be far less prejudicial than reluctant occupation in a posture by which pressure is made on the stomach. Two hours of sedentary occupation may succeed, in a temperature not below 60° of the thermometer in common use.

In about three hours after breakfast some plain and

simple food, in very moderate quantity, should be distributed. Three hours are the very utmost that a child, particularly if at all weakly, should be allowed to go without sustenance. Every quarter of an hour after hunger begins to be urgent adds its share to the mass of mischief, which a variety of causes has most probably conspired to accumulate. An hour for work and study may intervene before dinner. To dinner of the plainest animal food, and to some entertaining reading or communication on the part of the teacher during a simple dessert, an hour may with propriety be devoted. In winter a brisk walk or cheerful play should succeed, and then school exercises for an hour or two; but during the period of sitting the kind of employment should be twice or thrice changed. Some grateful preparation of milk, as rice pudding, blanc-mange, or preserved fruits, should be served in place of tea. These articles are mentioned because we often see over-anxious parents deprive children of innocent and agreeable articles on account of their health. Individual peculiarities, which cause certain articles to disagree with the stomach, will soon show themselves, otherwise few plain eatables disagree with children, especially active children.

The last-mentioned refreshment should, in fine weather, be followed by an excursion; at other seasons by some active in-door exercise, in which, as in everything else, the governess or assistant should join. After this, at an early hour, the children should retire to bed. At all times exposure to damp must be guarded against.

Besides the healthful condition of the nursery, it will be desirable, when parents are residing in a large town, *to give children the benefit of country air as often as possible*. Infants, and nervous and susceptible persons, experience striking effects from breathing town air, as Mr. Thackrah has observed. He says, "A child subject to spasm of the glottis" (a portion of the wind-pipe) "will have alarming convulsions when it breathes

the air of a confined apartment in a large town. The convulsions cease when it is removed into the country, recur when brought home again, and are again removed by a purer atmosphere."

The air of towns is not so stimulant as that of the open country, most likely from a deficiency of oxygen; and some asthmatics, accordingly, find they breathe with greater ease in the dense city. Those, too, who are suffering in the latter stages of consumption have their complaints aggravated by the excitant air of the country. Still town air must be considered very unfavourable to the general tone of the health, from the want of these stimulant properties. Vigour and robustness are rare among those breathing it; on the contrary, they are marked by languor, paleness of complexion, and proneness to disease, the digestive system being that most likely to fall into derangement.

Under twelve years of age it should be an invariable rule that the hours of close application should never exceed those of amusement and exercise. "The children," observes Dr. Beddoes, "that have made, within my knowledge, the quickest progress, felt the deepest interest in knowledge, and retained their acquisitions most firmly, were never detained at their books above an hour *at a time*, and seldom above half that time; so perpetually true is it that the other most valuable objects are best secured by the very means which a regard to health enjoins."

The conduct of the labouring classes has often been censured for overburdening their children with weights beyond their strength, or requiring prolonged muscular exertion too great for their years. But parents in affluent circumstances at times commit a still more unjustifiable and fatal error in *overcharging the tender minds of their children*, and consigning them to preceptors who, ignorant of human nature, "teach the young idea how to shoot" by as forced and unnatural a process as that adopted by the gardener in obtaining hothouse fruits and flowers.

If this vicious system be commenced in childhood, and continued undeviatingly through adolescence, including the period from seven to fourteen years of age, the body is sacrificed to the mind; the vital energy employed on the brain, or organ of thought, is at the expense of that of the rest of the body, and gradual exhaustion, wasting of flesh, and slow fever are the consequences.

This unnatural exertion of children is the destruction of their talents and their health, and the powers of the mind in these cases are generally lost in a debilitated and exhausted body. Should these facts be overlooked, and, in addition to forced exercise of the brain, the stomach be overloaded with too much nutrimental matter, especially of animal kind, the growth of parts is morbidly hastened, the organs are prematurely developed, and we have a feeble pigmy in the place of an energetic man. From these combined causes result fevers, inflammation and dropsy of the brain, cough, and consumption. The very early activity of one organ, the consequence of its premature development, so far from being a reason for our tasking it to greater exercise, ought, on the contrary, to make us extremely reserved in affording it stimuli, or agents capable of still further exciting it. In no case does this reasoning so forcibly apply as to a large brain in a child, which, so far as regards mental exertion, ought to be kept in a state of perpetual quietude.

"There is," observes Sir William Ellis, "at the present period a laudable anxiety to instruct children at a very early age. As far as this tends to their moral education it is most advantageous; but I am afraid that the systems which exist in some infant schools will tend rather to weaken than to strengthen the brain, by too early calling forth the powers of the mind. In fact, the soft structure of the brain in infancy seems to indicate the impropriety of exercising it too much in its immature state; and how rarely do we meet with instances of those who have exhibited very precocious talents ful-

filling the anticipations of their friends in after-life ! But I am afraid that the intellectual powers not being eventually so strong as they otherwise would have been is not the only mischief. The constant undue excitement of the brain, before the constitution has attained sufficient strength, will make the rising generation peculiarly liable to disease of that organ, and of the nervous system in general."

Children at school lead too sedentary a life, and when at their studies are too apt to acquire constrained attitudes by stooping, or pressing with their breast against the edge of a desk or a table.* By such means they

* *The influence of colour upon health* is a subject of some importance as regards schools, &c. Mr. William Burns, a contributor to the *Builder*, observes, "The Rev. Mr. Mitchell, in his report to the Committee of Council on Education, states as his opinion that the ill-health of pupil teachers and mistresses of schools is caused by bad ventilation and small windows. I perfectly agree with Mr. Mitchell's observations as far as they go ; but I believe there is another cause which assists powerfully in producing ill-health in schools, and induces to melancholy, which I believe has escaped Mr. Mitchell's observation, as well as every other writer on the subject. From several years' observations in rooms of various sizes used as manufacturing rooms, and occupied by females for twelve hours per diem, I found that the workers who occupied those rooms which had large windows with large panes of glass in the four sides of the room, so that the sun's rays penetrated through the room during the whole day, were much more healthy than the workers who occupied rooms lighted from one side only, or rooms lighted through very small panes of glass. I observed another very singular fact, viz., that the workers who occupied one room were very cheerful and healthy, while the occupiers of another similar room, who were employed in the same kind of work, were all inclined to melancholy, and complained of pains in the forehead and eyes, and were often ill and unable to work. Upon examining the rooms in question I found that they were both equally well lighted and ventilated. I could not discover anything about the premises that could affect the one room more than the other ; but I observed that the room occupied by the cheerful workers was wholly whitewashed, and the room occupied by the melancholy workers was coloured with yellow ochre. I had the yellow ochre all washed off, and the walls and ceiling whitewashed. The workers ever after felt more cheerful and healthy. After making

are often seized with a cough, palpitation of the heart, indigestion, and aggravated pulmonary diseases. The vicissitudes in their course are too great, long rest alternating with violent exercise.

It has been justly said of some schools, especially schools for females, that they are *so many mills for grinding young women old*. The natural functions are, in such institutions, too often sacrificed to the attainment of artificial accomplishments. They treat the human frame as if it were a child's watch; much pains are taken about the polish and gilding of the surface, but scarcely any in preserving the integrity and regular action of the internal machinery, and if it look well on the outside it is a matter of little consequence how it goes.

In a circular to the school inspectors the *sanitary state of school premises, and the importance of affording means of healthy recreation to the children, are very strongly dwelt upon*. After pointing out the difficulties which the Committee of Council so often meet with in enforcing its rules, the secretary says, "It might, however, tend to create a more active public opinion upon the subject, if her Majesty's inspectors were to make a point of inquiring into the sanitary condition of every school which they inspect, so far as to direct the attention of the managers to anything strikingly prejudicial to health in the state or in the rules of the school.

"Floors which admit of no body of air beneath them;

this discovery I extended my observations to a number of smaller rooms and garrets, and found, without exception, that the occupiers of the white rooms were much more healthy than the occupiers of the yellow or buff-coloured rooms; and, wherever I succeeded in inducing the occupiers of the yellow rooms to change the colour for whitewash, I always found a corresponding improvement in the health and spirits of the occupiers. From these observations I would respectfully drop a hint to the authorities of schools, asylums, and hospitals to eschew yellow, buff, or anything approaching to yellow, as the ground colour of the interior of their buildings."

a few small windows low down in the walls, and kept closed, instead of many large windows near the ceiling, and freely opened; excess or deficiency of warmth; the omission to establish a thorough draught of air in the rooms for a considerable time between morning and afternoon school, more especially if, as is often the case, a certain number of children dine in the same rooms during some part of the interval, are all points to which you might call attention.

"If the common elementary schools in towns, where sanitary evils are the most felt, began their work at as early an hour as that observed in schools for the wealthier classes, at least one half holiday per week, besides Saturday, might, without loss of lessons, be taken for a walk by the master with all the boys, and by the mistress with all the girls, into the country.

"These walks (for the boys and girls respectively) might be taken on different days, or in different directions, or together, as the managers might think best. The more scope they can be made to afford for unrestrained exercise the better."

Where the digestion of a child or young person is weak we must not attempt to strengthen it by stimulating food, or much aliment of any kind. The stomach is not to be forced to a discharge of its functions; it must be rather coaxed by mild yet nutritive food, in small quantities at regular intervals; while general invigoration of the frame is obtained, and consequently greater ability to digest more varied and more numerous articles of diet, by free exercise in the open air, the use of the tepid bath, and frictions on the skin.

The moral effect of pampering the appetite of children by unceasing indulgence is most melancholy. Is the mother afraid of an explosion of passion? A bribe in the shape of a cake or tart is promised as a peace-offering to the child. Does it annoy a whole company by its cries, or boisterous or ill-timed pranks? It is persuaded to be quiet by the promise of some sweetmeat or extra indulgence at the next meal. If it has been good, as

the phrase is, and learned its letters, the reward is still something for the stomach. *Eating is soon regarded as the chief end and object of life* by a child who sees no other incentive to good behaviour held out to it. A premium would truly seem to be given for gluttony. The use of the other nobler senses, and of the faculties of the mind, the early cultivation of the kindlier feelings of our nature, generosity, disinterestedness, pity, filial love, are all overlooked and postponed in favour of the one sensual, selfish, and absorbing act of gormandising.

If the lungs be the weak part, and there is dry cough, with panting after every slight effort, whatever is calculated to suspend the regularity of respiration should be forbidden, as, for instance, where the breath is held in during the lifting of anything heavy, or by pulling or pushing. So, likewise, protracted expiration or breathing out, which is only *half of the regular function of breathing*, as in blowing wind instruments, singing long on a high key, or declamation at the stretch of the voice, is to be carefully avoided. If the predisposition to pulmonary disease inherited from parents be very strong, efforts of the above kind can never be indulged in with impunity. In other cases, however, regular exercise of the lungs themselves, and of other parts of the body, as already indicated, will enable children with primarily very weak chests to attain vigour sufficient to allow of their succeeding in the arts of music, song, and elocution; but they can never do this by forcing—by a sudden effort of volition.

The incessant injunctions of mothers and governesses *to keep the head up and the shoulders back* is founded upon an erroneous principle, being entirely in opposition to the law of nature, that, in order to keep the body healthy, rest must succeed exertion. Man, it has been well remarked, was formed to walk upright; but it was decreed likewise that he should bend his back in tilling the ground, and those who fail to do so shall not go unpunished for their disobedience. It is the absurd

prohibition of this simple motion of the body alone by the use of shoulder braces and backboards, and the want of the wholesome and indispensable alternation of action and rest of the muscles, that contorts the spine, protrudes the breast, and entirely unhinges the finest form that has been subjected to this unnatural torture.

But the mere injunction to keep the head up and the shoulders back, however often it be repeated, is always, in consequence of its being unnatural, obeyed with reluctance, and evaded at every opportunity.

Follow the example of the elegant Greeks, the symmetry and beauty of whose forms are so much admired. They put no unnatural bandages on the body; all their garments were easy, loose, and floating, and the effects were seen in their every limb and their every motion. On the contrary, we can at once distinguish among thousands, from their stiff, starched awkwardness, *the forms that have been pinioned and tortured by wicked inventions to turn beauty into deformity, and the finest figures into rickety ugliness.*

The physical education of girls is shamefully neglected in too many cases. How frequently an over-anxiety for delicacy of complexion in a daughter, or the apprehension that her limbs may become ungraceful, and her habits vulgar, is the means of debarring her from the enjoyment of either air or exercise to an extent sufficient to insure the health and activity of the system! The consequence is that too many females acquire in infancy a feeble, sickly, and languid habit, rendering them capricious and helpless, if not the subjects of suffering, through the whole course of their lives.

The bodily exercises of the two sexes in childhood might, in fact, nearly assimilate. As it is important to secure to both all the corporeal advantages which nature has formed them to enjoy, both should be permitted, without control, to partake of the same rational means of insuring a continued flow of health and animal spirits, to enable their systems to perform perfectly all the functions of life. Girls should not, there-

fore, be confined to a sedentary life within the precincts of the nursery, or at best permitted to take a short walk, veiled and defended from every gleam of sunshine, and from every breath of air. The unconstrained enjoyment of their limbs and muscles in the open air, without a ligature to restrain the freedom of their motions, or an overwatchful eye to curb the lively joy of their unclouded spirits, is equally important to their health and well-being as to that of their brothers.

Female education is more detrimental to health and happiness than that of the male. Its grasp, its aim, is at accomplishments rather than acquirements; at gilding rather than at gold; at such ornaments as may dazzle by their lustre, and consume themselves in a few years by the intensity of their own brightness, rather than those which radiate a steady light till the lamp of life is extinguished. They are most properly termed accomplishments, because they are designed to accomplish a certain object—matrimony. That end, or rather beginning, obtained, they are about as useful to their owner as a rudder is to a sheer hulk moored head and stern in Portsmouth harbour, the lease of a house after the term has expired, or a pair of wooden shoes during a paroxysm of gout.

The physical condition of females, if they are to be fitted to take a useful part in society, should not be too tender, without our ever forgetting the authoritative guidings of nature, which has stamped a greater delicacy and refinement on their organisation. By a more considerable pliancy of constitution, and by certain laws to which their sex subjects them, they are enabled to submit to the artificial constraints of society with far less inconvenience than men. This power of tolerating the most heterogeneous and unnatural situations and habits, without serious prejudice to health, is a very pervading characteristic of women. The factory commissioners remarked it everywhere. In most of the districts to which their visits extended they discovered the females to experience much less inconvenience by

the constrained postures, unhealthy influences, protracted labours, &c., of our manufacturing system than the males. This is one of the remarks contained in their report: "The female, as a child, as adolescent, as an adult, bears factory labour better than the male."

Still the full exercise of lungs and limbs in a pure atmosphere, and a diminution of the hours devoted to sedentary occupations, are exceedingly desirable. Indeed, it may be well doubted whether the labours of the factory commissioners anywhere revealed to them a system more prejudicial to the health, morals, and understandings of youth, than that which obtains in every portion of the kingdom amongst dress-makers. Their daily pursuits in close apartments, and in positions so unnatural to juvenile agility, are in themselves far too great a tax upon their constitutions; *but when we recollect the constant practice of night work which everywhere prevails, who can wonder at the frequent deformities to which they are subject*—the indigestion, constipation, and ultimate pulmonary consumption, the occurrence of which amongst them is familiar to those who practise the medical profession? A very partial exercise of the muscles, the imperfect performance of the functions of nutrition, and the aëration of the blood induced by these circumstances, are adequate to account for all their morbid consequences. Indeed, it may be safely affirmed that young females engaged as dress-makers, teachers in schools, and so forth, present the most prolific sources of disease and death of any class in the community.

"Were a law to be passed and strictly observed," remarks a clever writer, "which should absolutely prohibit the administration of medicine to children except by the advice of an experienced physician, I am convinced it would annually save the health and lives of thousands."

There does certainly exist with many parents a strange propensity to substitute the drugs of the apothecary for judicious nursing, or rather, to supply, by the plentiful

administration of the former, the errors and omissions in the latter.

By this dependence upon medicine, for what medicine is not calculated to effect, the evil produced by one species of error is aggravated by another of an equally dangerous character. The health of the child invariably suffers, and its course to the grave is often greatly accelerated. Were parents, instead of attempting to allay by medicine every trifling complaint of childhood, to look upon the latter as an invariable indication of some defect in nursing, and to have recourse at once to the necessary change of food, air, exercise, or clothing, they would, in the great majority of instances, effectually guard against the occurrence of actual disease, while they added to the comfort, augmented the strength, and prolonged the lives of their offspring.

But if the administration of drugs, when pain and uneasiness are actually present, be productive of injury, what shall we say to that most absurd and pernicious of customs, *the giving to children in perfect health medicine, under the silly pretext of sweetening their blood, and thus guarding against the approach of disease?* This custom, it is true, was far more prevalent formerly than at present; but even now, in the calendars of certain mothers and nurses, the spring and autumn are marked as seasons consecrated to physic. At these periods of the year, no matter how perfect the health of their children, they believe it to be their bounden duty to force upon them some innocent medicine, as they term it, but which is often of the most active character, to cleanse their blood, and to insure their continuance in health.

It may, perhaps, be in vain to urge upon such individuals that medicine is not adapted to the preservation of health, but only for the removal of disease; that when the latter is not always present every drug, however mild may be its operation, throws the stomach into immediate disorder, weakens its digestive powers, vitiates the juices designed for the solution of the food,

and thus impedes the growth, and impairs the strength and vigour, of the whole system. Under this plan for preventing disease children are actually made sick for fear they should become so, and their constitutions are enfeebled by the perverse means employed to strengthen them.

It has been well observed that Art opens all her resources in vain, nor can the greatest efforts of ingenuity make amends for the want of pure air, cleanliness, healthy breast-milk, or wholesome food and proper exercise. The neglect of any of these essential points is attended with irreparable mischief; while, on the contrary, a due attention to them will, in a majority of instances, preclude the necessity of any medical aid.

We trust we shall not be misunderstood, from the foregoing remarks, as inculcating any neglect of proper medical treatment in the diseases of children. On the contrary, we insist that when disease is discovered to be actually present recourse should be had, without a moment's delay, to the advice of a physician. All we desire is to point out the necessity of proper regimen and diet for the prevention of the complaints of childhood, and as a means of removing those immediate effects of bad nursing, which are so frequently converted into serious and often incurable maladies by "domestic doctoring."

*The following maxims for parents who have reason to dread the presence of that fatal scourge, consumption, in their children are worthy of consideration:—*1. If consumption has prevailed in either of your families use the earliest precautions to prevent your children falling victims to the same disease. 2. Though consumption may not have been common on the side of either, yet precaution is not the less important. Two or three neglected colds in winter, or a cutting blast in spring, with improper clothing, may, in an infirm constitution, securely seat the relentless destroyer—at the best, wretched health will be a certain consequence. 3. When those who *must* be ignorant of the essential difference between a common cold and consumption boast of their

cures, hear, but heed them not. Ask this question of your own common sense—What experience or inspiration can instruct such pretenders? 4. It is wise to check a cold the first week, but much wiser the first four-and-twenty hours. 5. Attempt not the treatment of your own or your children's colds, lest what may in reality have been in the first instance a *trifling* disease, should, by your mismanagement, be converted into a confirmed consumption. 6. All remedies which do no good in either colds or consumptions invariably do a very great deal of harm. 7. A strictly sober life, regular active exercise, and a cheerful and contented mind, are the most certain means by which those predisposed to consumption may escape its attack, and preserve their lives to an advanced period. 8. The most certain means by which the predisposed, even when guilty of no intemperance, may invite the attack of their lurking enemy, is a plentiful use of pectoral balsams, balms of life, lung-restorers, cough-lozenges, or, indeed, any of the list of "certain cures" in the newspapers.

CHAPTER XV.

TRAVELLING AS A MEANS OF HEALTH.

" His travel has not stopp'd him,
 As you suppose, nor alter'd any freedom,
 But made him far more clear and excellent;
 It drains the grossness of the understanding,
 And renders active and industrious spirits.
 He that knows men's manners must of necessity
 Best know his own, and mend those by examples.
 'Tis a dull thing to travel like a mill-horse,
 Still in the place he was born in, round and blinded."

BEAUMONT AND FLETCHER.

" While yet you breathe, away; the rural wilds
 Invite; the mountains call you, and the vales,
 The woods, the streams, and each ambrosial breeze
 That fans the ever-undulating sky."

ARMSTRONG.

TRAVELLING is the best antidote against the injurious effects of too much occupation and business, not less than of the languor of idleness and inactivity. It comes more especially recommended to those whose employment condemns them to a sedentary life, who are continually engaged in abstract studies or oppressive labour, whose minds have sunk into a state of insensibility or melancholy.

Of all the great men of antiquity who undertook extensive journeys for health and instruction no one is entitled to more studious imitation than Cicero. He was twenty-eight years old, and had already attracted considerable notice by his successful pleadings, when he set out on the then fashionable tour through Greece

and Asia. He was in that situation in which, notwithstanding his weak health, any of our modern gentlemen would have thought it little better than self-immolation to abandon the theatre of his opening fame for the purposes of gaining bodily vigour and increase of accomplishments. But Cicero thought and reasoned very differently, as appears from his own account of the real motives of his journey.

"My body," he says, "at this time was exceedingly weak and emaciated, my neck long and small, which is a habit thought liable to great risk of life, if engaged in any fatigue or labour of the lungs; and it gave the greater alarm to those who had a regard for me that I used to speak, without any remission or variation, with the utmost stretch of my voice, and great agitation of my body. When my friends, therefore, and physicians advised me to meddle no more with causes, I resolved to run any hazard rather than quit the hopes of glory which I proposed to myself from pleading; but when I considered that, by managing my voice and changing my way of speaking, I might both avoid all danger and speak with more ease, I took a resolution of travelling into Asia, merely for an opportunity of correcting my manner of speaking; so that after I had been two years at the bar, and acquired a reputation in the forum, I left Rome."

Cicero returned to Rome, after an absence of two years, greatly improved, and changed, as it were, into a new man. The vehemence of his voice and action was moderated, the redundancy of his style and fancy corrected, his lungs strengthened, and his whole constitution confirmed.

Of all the writers who have dilated on the advantages of travelling none have expressed themselves more eloquently than the great Lord Bacon, who observes, "Travel in the younger sort is a part of education; in the elder, a part of experience. He that travelleth into a country before he hath some entrance into the language, goeth to school, and not to travel. That

young men travel under some tutor or grave servant I allow well, so that he be such a one that hath the language, and hath been in the country before, whereby he may be able to tell them what things are worthy to be seen in the country where they go, what acquaintances they are to seek, what exercises or discipline the place yieldeth, for else young men shall go hooded and look abroad little. The things to be seen and observed are the courts of princes, especially when they give audience to ambassadors; the courts of justice while they sit and hear causes; and so of consistories ecclesiastic; the churches and monasteries, with the monuments which are therein extant; the walls and fortifications of cities and towns; and so the havens and harbours, antiquities and ruins, libraries, colleges, disputations, and lectures where they are; shipping and navies, houses and gardens of state and pleasure near great cities; armories, arsenals, magazines, exchanges, burses, warehouses, exercises of horsemanship, fencing, training of soldiers, and the like; comedies, such whereunto the better sort of persons do resort; treasuries of jewels and robes; cabinets and rarities; and, to conclude, whatsoever is memorable in the places where they go, after all which the tutors or servants ought to make diligent inquiry. As for triumphs, masks, feasts, weddings, funerals, capital executions, and such shows, men need not to be put in mind of them; yet are they not to be neglected. If you will have a young man to put his travel into a little room, and in a short time to gather much, this you must do:—First, as was said, he must have some entrance into the language before he goeth; then he must have such a servant or tutor as knoweth the country, as was likewise said; let him carry with him also some card or book describing the country where he travelleth, which will be a good key to his inquiry; let him keep also a diary; let him not stay long in one city or town, more or less as the place deserveth, but not long. Nay, when he stayeth in one city or town let him change his

lodging from one end and part of the town to another, which is a great adamant of acquaintance; let him sequester himself from the company of his countrymen, and diet in such places where there is good company of the nation where he travelleth; let him, upon his removes from one place to another, procure recommendation to some person of quality residing in the place whither he removeth, that he may use his favour in those things he desireth to see or know—thus he may abridge his travel with much profit. As for the acquaintance which is to be sought in travel, that which is most of all profitable is acquaintance with the secretaries and employed men of ambassadors, for so in travelling in one country he shall suck the experience of many. Let him also see and visit eminent persons in all kinds which are of great name abroad, that he may be able to tell how the life agreeth with the fame; for quarrels, they are with care and discretion to be avoided—they are commonly for mistresses, healths, place, and words; and let a man beware how he keepeth company with cholerick and quarrelsome persons, for they will engage him into their own quarrels. When a traveller returneth home let him not leave the countries where he hath travelled altogether behind him, but maintain a correspondence by letters with those of his acquaintance which are of most worth; and let his travel appear rather in his discourse than in his apparel of gesture; and in his discourse let him be rather advised in his answers than forward to tell stories; and let it appear that he doth not change his country manners for those of foreign parts, but only prick in some flowers of that he hath learned abroad into the customs of his country."

A modern writer, the late Samuel Rogers, in "Table Talk," published since his decease, is said to have expressed himself as follows with regard to travelling. His opinions are very just, and are marked with the sound practical sense which distinguished the "bard of memory."

"Ours is a nation of travellers, and no wonder, when the elements, air; water, fire, attend at our bidding to transport us from shore to shore; when the ship rushes into the deep, her track the foam as of some mighty torrent, and in three hours or less we stand gazing and gazed at among a foreign people. None want an excuse: if rich, they go to enjoy; if poor, to retrench; if sick, to recover; if studious, to learn; if learned, to relax from their studies. But, whatever they may say, whatever they may believe, they go for the most part on the same errand, nor will those who reflect think that errand an idle one.

"Almost all men are over-anxious. No sooner do they enter the world than they lose that taste for natural and simple pleasures so remarkable in early life. Every hour do they ask themselves what progress they have made in the pursuit of wealth or honour; and on they go as their fathers went before them, till, weary and sick at heart, they look back with a sigh of regret to the golden time of their childhood.

"Now travel, and foreign travel more particularly, restores to us in a great degree what we have lost. When the anchor is heaved we double down the leaf, and for awhile, at least, all effort is over. The old cares are left clustering round the old objects, and at every step as we proceed the slightest circumstance amuses and interests. All is new and strange; we surrender ourselves, and feel once again as children; like them, we enjoy eagerly; like them, when we fret, we fret only for the moment, and here the resemblance is very remarkable; for if a journey has its pains as well as its pleasures—and there is nothing unmixed in the world—the pains are no sooner over than they are forgotten, while the pleasures live long in the memory.

"Nor is it surely without another advantage. If life be short, not so to many of us are its days and its hours. When the blood slumbers in the veins how often do we wish the earth would turn faster on its axis—that the sun would rise and set before it does; and, to escape

from the weight of time, how many follies, how many crimes, are committed! Men rush on danger, and even on death. Intrigue, play, foreign and domestic broil, such are the resources, and, when these things fail, they destroy themselves.

“Now in travelling we multiply events, and innocently we set out, as it were, on our adventures; and many are those that occur to us morning, noon, and night. The day we come to a place which we have long heard and read of—and in Italy we do so continually—it is an era in our lives, and from that moment the very name calls up a picture. How delightfully, too, does the knowledge flow in upon us, and how fast! Would he who sat in a corner of his library poring over his books and maps learn more, or so much, in the time as he who, with his eyes and heart open, is receiving impressions all day long from the things themselves? How accurately do they arrange themselves in our memory, towns, rivers, mountains; and in what living colours do we recall the dresses, manners, and customs of the people! Our sight is the noblest of all our senses. It fills the mind with most ideas, converses with its objects at the greatest distance, and continues longest in action without being tired. Our sight is on the alert when we travel, and its exercise is then so delightful that we forget the profit in the pleasure.

“Like a river that gathers, and refines, as it runs, like a spring that takes its course through some rich vein of mineral, we improve, and imperceptibly—nor in the head only, but in the heart. Our prejudices leave us one by one; seas and mountains are no longer our boundaries; we learn to love, and esteem, and admire beyond them.

“Our benevolence extends itself with our knowledge; and must we not return better citizens than we went? For the more we become acquainted with the institutions of other countries, the more highly must we value our own.”

Unquestionable as are the benefits to health obtained by

change of climate and travelling, they are often neutralised by a neglect on the part of the invalid of the common precepts of hygiene. Disappointed hopes and aggravated disease are often, in such cases, laid to the account of the country which he visited, when, in fact, the whole ground of complaint rested with himself. Many families leave home in the summer season on a trip, in which the pursuits of health and pleasure are often attempted to be blended, but in which their anticipations of the enjoyment of either are often sadly marred by an oversight of the respective claims of each. For the guidance of all such travellers we give the following rules, which we earnestly commend to their serious attention.

As regards a single individual it may be safely asserted that, if not too feeble, nor suffering from a local malady, which would render the exercise too painful, *travelling on horseback is to be preferred to any other mode of conveyance.*

When a person travels in a carriage it is desirable to secure a free introduction of air, without his being exposed to a draught or current. It is very beneficial to change the posture frequently, that is, to sometimes sit and sometimes to recline, so as to prevent the fatigue and other unpleasant consequences which would follow a jolting or shaking in one direction.

If possible the transition from long seclusion in a sick room, or house, to going a journey should not be abrupt. Moderate exercise should be taken for some days beforehand. Excursions, the object of which is health and the prolongation of life, must not be too fatiguing. The standard here will, however, depend on the state and constitution of the person, and the temperature of the weather. Progression on the road just enough to give change of scene, and to induce that degree of fatigue productive of sleep, will be sufficient. Hence a distance of from twelve to twenty miles a day will often suffice, at any rate to begin with. *One ought, above all things, to avoid travelling in the night time,*

which, by interrupting the necessary repose, checking perspiration, and exposing the body to unwholesome air, is always prejudicial. By respecting nocturnal rest one may accomplish twice as much in the day. Even in the case of invalids, compelled for want of private carriages to avail themselves of railways or steamboats, this rule can still be adhered to, since it is in their power to stop at a suitable house in the evening, and prosecute their journey by the next day's conveyance. Nothing can be more absurd, and, in some cases, more injurious to health, than the rapidity with which journeys are commonly made, as if immense importance were attached to arriving at a given place in a certain number of hours; and when the place of destination is reached the traveller perhaps finds nothing to do, and wishes himself again upon the road. When the weather is fine the traveller may with advantage walk a mile or two, so as to obviate the stiffness from sitting long in a carriage.

People, especially valetudinarians, must not imagine, as is so commonly done, that because they are travelling they can eat or drink more than when they were at home. The reverse opinion is a correct one. The motion in travelling is itself a stimulus, and hence less stimulating nourishment is then required than in a state of rest. There is hardly any advice more pernicious than that frequently given to those fatigued after a day's journey to drink a glass of wine or spirits and water, and the like, to recruit the strength, which can only be suitably renovated by sleep. Such a practice, of which a hearty supper frequently forms part, is of itself competent to produce indigestion, feverishness, and disturbing dreams. The meals of an invalid traveller, or, indeed, of any person on the road, ought to be of light, nutritive food in moderate quantities, taken early in the morning, or after a ride of eight or ten miles, and early in the evening after the day's journey is completed, so that some time shall elapse between this last repast, which is both dinner and supper, and the hour for

retiring to bed. *In the long days of summer a rest of at least two or three hours is required*, during which the invalid can take repose by reclining on a couch, or indulging in a short sleep. If any aliment be taken at this time it ought to be a simple beverage, such as a glass of lemonade or milk and water, with a crust of bread or a biscuit.

In the choice of food when travelling it is a good rule to use the common fare of each country, provided it be such as general experience shows to contribute to the true nutrition and health of its inhabitants. Food readily obtained, and such as cannot be easily adulterated, is to be preferred. Hence it is safest to use milk, eggs, well-baked bread, plain roasted or boiled meat, and ripe fruit in small quantities. This last is still safer when eaten with bread. As a general rule the wines met with at hotels are bad, and will often disorder the stomach. Simple water is, after all, the best adapted to all classes and descriptions of persons. Should this fluid be impure, which is often the case, or have an unpleasant odour, it may be rendered sweet by mixing about a table-spoonful of finely pulverised charcoal with a pint of water, then stirring it well round, and after it has stood for a few minutes let it run slowly through filtering paper into a glass. A limpid and perfectly pure fluid is thus obtained. The charcoal powder may be carried on a journey in a small box or bottle well corked.

When staying at any strange house for the night, pains should be taken to select a bedroom which has not been recently whitewashed or painted, or wet-scrubbed the same day. It is especially important to see that the sheets are perfectly dry. Should there be the least dampness they ought to be well aired before a fire. *Many a fatal cold has been caught by neglecting this advice.* An additional precaution will be found in carrying with one a thin flannel shirt, supposing that such an article of apparel be not habitually worn. With the same view, some persons take with

them what are called sleeping trousers of linen or cotton, which enable them to dispense with sheets entirely if there be a suspicion of their dampness.

At hotels, and also at the houses of your friends where you may visit, the bed which falls to your lot may not have been in recent use, or from other causes may be damp and dangerous to sleep in. At some hotels this is frequently occasioned by putting sheets which have been used by former guests to the mangle, where they must be thoroughly damped to make them look fresh from the fold. Take your dressing mirror or your portable shaving-glass, and put it for a few minutes between the sheets. If the bed is damp the glass will soon be covered with moisture; if well aired the glass will be dry. It is necessary to mention that the glass must be cold, or the test will fail.

It is prudent to regulate the day's journey so that the best hotel may be reached by sunset, or before night-fall at the latest.

Cleanliness is doubly necessary to the traveller, and is preserved by regular washing or sponging with either tepid or cold water, or salt and water, according to the prior habit of the individual, or the state of his skin at the time. He must not practise it if the skin be cold after free perspiration, nor immediately after a meal.

Travellers will find the most powerful of all preventives of colds and coughs to be the regular habit of cold sponging, continued, when the constitution will permit, in winter and summer. Sir Astley Cooper was accustomed to say that he had escaped colds for thirty years by this means. It is scarcely safe, however, unless the person be uncommonly healthy, to begin this practice in all its extent in cold weather; but it may be commenced partially even by the delicate at any season. Those travellers, therefore, who can pursue this regimen should wash, lave, or sponge the face, temples, neck, and bosom with the coldest water, both on going to bed and on rising. This may also be extended with

advantage to the feet and legs, as well as to the arms and shoulders. The only precaution requisite is to do it quickly, and instantly rub the parts with a dry cloth till they become warm and glowing. This will fortify the constitution against fatal attacks of catarrh and consumptive coughs.

Amid all this attention to the body we must not neglect the mind. Cheerfulness is to be encouraged by all proper means. A few good books will occasionally be a salutary resource to the traveller during the evening, or when detained by bad weather. In addition to these recommendations we may add those of Dr. Robertson, who, in his treatise on diet and regimen, has the following excellent remarks on the *sanitary effects of travelling*.—

“The change of air which, in cases of comparative health, I would advise in strongest terms, is that embraced in constantly moving for the time from place to place, *taking as much personal exercise during the journey as is found to be possible.* I have often been struck with the fact that an Englishman will readily make up his mind to set off to the continent—go among a people whose language he is perhaps quite ignorant of, whose habits are quite foreign to his own, whose houses, except in the larger cities, may be such as to disgust his insular love and sense of cleanliness, whose style of living may be such as to make him almost loathe the sight of food, whose country may or may not admit of but an indifferent comparison with his own, and he may, at a considerable expense, have transported himself thither. And for what purpose? Perhaps to set out on a pedestrian tour, with a stick and a bundle—an undertaking which he might have performed at home more cheaply, as improvingly, with many and evident greater advantages, and probably with as much benefit to his health; or he may have done this for the sake of bathing in thermal springs, which are probably not better suited to his case than those of Buxton or Bath, or in order to drink saline

mineral waters that are possibly not equal to those of Cheltenham, or chalybeate waters not better than those of Tunbridge Wells, or sulphuretted waters not comparable to those of Harrowgate. It may be very well to say to the man of wealth and independence, 'Medicine is really not calculated to effect your cure. Get together your travelling conveniences, your carriage, and your servants, and go to the continent, and visit the Brunnens of Nassau, or the Tyrol, or the south of France, or Rome, or Naples.' But this sort of advice, if given to the great mass of the people of Great Britain, even of the middle classes, is only like filling their hands with water, which, thirsty though they be, is never likely to reach their lips, or suspending viands before their eyes which are destined for ever to elude their famishing and eager grasp. It may be said to such with sufficient truth, that they have little cause to envy their wealthier brethren the unbounded freedom of far and wide migration; that, to taste all the pleasures which the best and most health-giving of all kinds of travelling affords, they need not to leave their native land; but, with some shillings and pounds, according to their means and their expectations, and a bundle containing a change or two of linen and an extra pair of shoes, hung over the shoulder by a stick, they may wander over the highlands of Scotland, over Cumberland, or Westmoreland, or Wales, or last, but not least, Derbyshire; and admiring the beauties of the woodland plains, or the grandeur of unequalled or unsurpassed mountain scenery; warmed into a taste for the sublime and the beautiful by seeking nature in all her inimitable, unartificial, and untouched grandeur, and by seeing her decorated and made more useful by the hand of man, they may, after a ramble of weeks and months as may be, return home with the assured conviction that what travelling and change of air and scene can do for man's health they have done for theirs.

"It is this sort of travelling, this total removal from

ordinary and every-day habits, this constant exercise, this continual change of air, which does most good ; that, if the man is in moderate health, is calculated to give vigour to his system, freedom to his limbs, and clearness to his mind ; that has, like magic, uprooted many a case of long-continued dyspepsia, and caused many a case of chronic disordered action, threatening to degenerate into something worse, to be no longer felt. Change of air may be too great, but it cannot be too frequent, if the powers of the system are not materially impaired.

"In many, the majority of the cases of indigestion, the spirits are either very much depressed, or the mind is in a state of highly morbid excitability. There are few diseases in which the remarkable sympathy which subsists between the body and the mind is so clearly seen as in dyspepsia. The consequence of this sympathy is, that the patient looks at everything in the darkest and blackest light—magnifies trifles into affairs of moment—is tormented with a constant cavilling, wretched sensitiveness. It is necessary, then, not only that the body should be exercised, and its muscles actively used ; not only that the stomach should be as little distressed by work as possible ; not only that change of air, frequent change of air, should be enjoyed, but it is necessary, moreover, that the mind should be taken away from its cares and troubles, from the customary sources of vexation, and be amused with variety without knowing how—an amusement that is well furnished by the fresh scenes, the fresh faces, and the various and numberless interesting matters for observation that a tract of country before unknown to him must ever present, even to the commonest observer.

"Travelling, and especially pedestrian travelling, presents, among its many other points of excellence, this in a remarkable degree—it acts directly on the mind as well as the body. I am satisfied that if the measure were tried in cases of hypochondriacism, and even in many a case of incipient insanity, numbers would be restored to their

reason, their families, and their friends. The effects of such travelling can hardly be sufficiently estimated. It would enable many an invalid, at a cheap and easy rate, to show a 'clean bill of health,' and there are few who would consider the prescription to be otherwise than palatable."

CHAPTER XVI.

HINTS TO THE AGED AND THE VALETUDINARIAN.

“‘You are old, Father William,’ the young man cried,
 ‘The few locks which are left you are grey;
 You are hale, Father William, a hearty old man—
 Now tell me the reason I pray.’

“‘In the days of my youth,’ Father William replied,
 ‘I remember’d that youth would fly fast,
 And abused not my health and my vigour at first,
 That I never might need them at last.’

“‘You are old, Father William,’ the young man cried,
 ‘And pleasures with you pass away,
 And yet you lament not the days that are gone—
 Now tell me the reason I pray.’

“‘In the days of my youth,’ Father William replied,
 ‘I remember’d that youth could not last,
 I thought of the future whatever I did,
 That I never might grieve for the past.’

“‘You are old, Father William,’ the young man replied,
 ‘And life must be hastening away;
 You are cheerful, and love to converse upon death—
 Now tell me the reason I pray.’

“‘I *am* cheerful, young man,’ Father William replied,
 ‘Let the cause thy attention engage;
 In the days of my youth I remember’d my God,
 And *He* has not forgotten my age.’”

SOUTHEY.

“Though old, he still retain’d
 His manly sense and energy of mind;
 Virtuous he was, and wise, but not severe—
 He still remember’d that he once was young.”

ARMSTRONG.

It is a circumstance worthy of notice, as it may contribute to the comfort of invalids, that long life is not

necessarily connected with high health, for it is certain that many attain to a great age under a very delicate state of health; whilst neither the conveniences nor the luxuries of life, with all their apparent advantages, are by any means peculiarly favourable, either to the preservation of health, or to the prolongation of life. The circumstances which seem to have contributed chiefly to longevity are, being born of healthy parents, and simplicity of diet earned by daily labour.

"*The age of sixty may, in general,*" observes Sir Anthony Carlisle, "*be fixed upon as the commencement of senility.*" About that period it commonly happens that some signs of bodily infirmity begin to appear, and the skilful medical observer may then be frequently able to detect the first serious aberrations from health. Long-continued professional experience has taught me to seek for such incipient disorders in the evidences of the state of the stomach and its dependencies, and from the condition of the blood and its vessels. Overfulness of the vessels, contamination of the blood, impaired digestion, and consequent crudities mingling with the elementary materials of the blood, are to be reckoned the leading causes of many diseases, and a scrupulous attention to these points will often discover the beginning of bad health.

"*The fibres in old persons are relaxed,* and the flexible solids, together with the blood-vessels, are more yielding than they are at a more vigorous period. From the same cause that muscular engine, the heart, labours under a diminished power, while it is obliged to drive on the circulation under the disadvantages of weakened and distended vessels.

"The separating of fluids from the blood, called the secretions and excretions, is also lessened and deteriorated, so that the ordinary methods of its purification, and of balancing its quantity, become impaired. Hence in extreme old age the blood is liable to be disproportioned, or to be vitiated in its composition.

"The heart and the blood-vessels are subject, how-

ever, to disturbances independently of any improper quantity of blood, or any discoverable change in its qualities. Of this kind are some disorders of the stomach, which occasion sudden and violent rushings of blood into the head, and which seem to be the immediate consequence of deleterious food. The same cause frequently disturbs the regular functions of the heart, and leads to a false inference of its being diseased.

"The most numerous tribe of disorders incident to advanced life spring from the failure or errors of the stomach and its dependencies, and perhaps the first source of all the infirmities of senility may be traced to effects arising from imperfectly digested food.

"The substances selected for the diet of the aged, and the cookery of their food, should be adapted to the state of their teeth; and solid viands, or those kinds which are difficult of solution, should be minced, bruised, or otherwise prepared, to meet the defects of the chewing instruments.

"In addition to the gradual failure of the teeth, the stomach itself suffers a diminution of its powers to convert food into the raw fluid material for bodily replenishment, and hence it becomes needful to be more choice and particular about diet. In old age the bowels are also liable to an increasing distention and torpor, which demand that a preference should be given to meats not remarkably putrescible.

"On a general view of the most suitable diet for the aged and the feeble, it may confidently be asserted that animal substances are more easily changed into nutritious fluids by digestion than vegetables; and it is reasonable to infer that the digested substance of animals is more readily converted into the medium of replenishment than that of vegetables. Still, however, there are many exceptions to this rule, since the soluble mucilages, farina, and pulps of some vegetables are known to be more digestible than the tough and hard parts of animals, which are difficult both of solution and digestion."

Our chapter on diet contains advice which will be found applicable to persons in advanced life.

With regard to fluids the recommendation of Sir Anthony Carlisle deserves attention. He says truly that when fermented liquors are good for the feeble (and this must be under the direction of a medical practitioner), those which are well fermented, and have little sugar or free acid, should be preferred. The Rhenish and French wines are objectionable, as well as luscious, sweet wines, and more especially malt liquors, because they become either a free acid, or readily pass into the acid state in the stomach.

The acid properties of liquors appear to be less hurtful to youth than the spirituous, while the reverse obtains with aged persons. *A habit of drinking any diluent liquors very freely appears to be also pernicious.* Such fluids not only relax the stomach and dilute its digesting liquor, but also present the best medium for fermentations of the most unwholesome kind.

Wines, if agreeable to the constitution and habits of the weakened individual, are often beneficial. They seem, when congenial, to invigorate the heart, to augment the bodily temperature, and to improve the nervous and sensorial powers. They are diffusible and temporary stimulants to the whole vital system. In some instances of debility suitable wines appear to strengthen digestion; but perhaps that salutary consequence is rather due to their influence upon the sanguineous and nervous organs. The intimate connection between the health of the stomach and the circulation of the blood, renders wine allowable when the vascular system is habitually weak; and probably, in such cases, wine prevents greater evils than those which it is known to produce.

The most cordial wine for old persons seems to be mild and old sherry when free from acidity. The long-continued habit of drinking wine, however, produces a sinking in old age, which is only removed by a total abstinence until the system is freed from vinous acidities.

From what we have stated it will be seen, that the principal points in the treatment of aged persons must be the endeavours to lessen and soften the increasing dryness and rigidity of the vessels, which at length produce a complete stoppage of the whole machine ; that nourishment and restoration of what has been lost must be facilitated as much as possible.

As the natural heat of the body decreases in old age, one must endeavour to support and increase it externally as much as possible. Warm clothing, warm apartments and beds, heating nourishment, and, when necessary, the removal to a warmer climate, are all means, therefore, that contribute greatly to the prolongation of life.

The food, as we have previously observed, must be easy of digestion, rather fluid than solid, abundant in concentrated nourishment, and, at the same time, much more stimulating than would be advisable at the earlier period. Warm, strong, and well-seasoned soups are, therefore, beneficial to old age ; and also tender roast meat, nutritive vegetables, and wine free from acid.

Persons with increasing years should accustom themselves more and more to a certain order in all the vital operations. Eating, drinking, motion, rest, and employment must have their determined periods and succession. Such mechanical order and regularity at this season of life may contribute greatly to the prolongation of it.

In the nervous temperament of invalids it is essentially necessary that the stomach should be kept in a quiet state. With this view nervous patients should be very particular in the choice of articles of diet. The peculiarities of the nervous habit are so very opposite, that the best advice a medical man can give to a nervous invalid is to avoid everything which disagrees with the stomach, and not to oppress or over-stimulate it with too great a quantity of those which do agree. So far as a general rule can be laid down we should say, avoid all green vegetables in a raw state, as celery, water-

creesses, lettuce, onions, cucumbers, radishes, melons, &c.; pickles, cheese, pastry, nuts, walnuts, sweetmeats, soups, broths, new potatoes, sweet ale, green tea, coffee, and all burnt articles, as English coffee, crust of bread, and outside of roasted meat.

Nothing can be more mischievous to the invalid than large quantities of apples, pears, and plums, in the form of dessert, after the stomach has already been loaded; but when taken under other circumstances they contribute to health, and appear to be providentially sent at a season when the body requires that cooling and antiseptic aliment which they are so well calculated to afford.

Fruits may be arranged under the following heads—stone fruits, the apple species, small-seeded fruits, small berries, and farinaceous fruits.

Stone fruits are less digestible than other species, and are more likely to undergo fermentation in the stomach. The ripe peach is one of the most delicious as well as most digestible of the stone fruits; the apricot is equally wholesome; but the nectarine is liable to disagree with some stomachs. Cherries are far less digestible; their pulpy texture and skins are not easily disposed of by the stomach.

The *apple* species is not so dilute and watery as the foregoing fruits, and is less likely to pass into a state of noxious fermentation; but its texture is firmer, and on that account is retained longer in the stomach, and often proves indigestible. The same observations apply to *pears*, except that their texture being in general less firm, they are less objectionable.

The *orange*, when perfectly ripe, may be allowed to the fastidious dyspeptic; but the white or inner skin should be scrupulously rejected, for it is not more digestible than leather.

The *small-seeded fruits* are by far the most wholesome. Of these the ripe *strawberry* and *raspberry* rank first. The *grape* is also cooling and antiseptic; but the husks and seeds should be rejected. The *gooseberry*

is less wholesome on account of the indigestibility of the skin, which is too frequently swallowed. The fruits to be classed under the head of small berries are the *cranberry*, the *bilberry*, and the *red whortleberry*. These are seldom eaten except when baked, and in that state their acescency seldom proves injurious. The farinaceous fruits are not wholesome. The *melon*, which is the principal one, is very apt to disagree with weak stomachs, and should never be eaten after dinner except with a plentiful supply of salt and pepper.

The most proper periods for indulgence in fruit appear to be the morning and evening. On some occasions it may be taken with advantage at breakfast, or three hours before dinner, and it affords a light and agreeable repast if taken an hour before bedtime; but these regulations are to be influenced by circumstances which no general rule can possibly embrace.

By cookery, fruit, otherwise unwholesome, may be converted into a safe and useful aliment. Apples, when baked, afford a pleasant repast, and from their laxative properties are well adapted to certain cases of dyspepsia. Fruit pies, if the pastry be entirely rejected, may be considered valuable articles of diet. Dried fruits are by no means so useful or so safe as is generally imagined; the quantity of sugar which enters into their composition disposes them to fermentation.

All persons, but especially those who are aged or invalids, when they go into a close room from the open air, ought not to approach the fire immediately, but, if cold, bring themselves gradually to the temperature of the air of the room, which ought rarely to exceed 60°. If, from inspecting the thermometer, which ought to hang at some distance from the fire, it is found to be considerably higher, the fire ought to be lessened, or more of the upper sashes opened. By such precaution they will not only avoid the debilitating effects of a sudden transition from extreme cold to great heat, but be less affected by the foul air thrown off by the burning fuel.

A common cold, the parent of so many other disorders, is generally occasioned thus:—When a person in cold weather goes into the open air, every time he draws in his breath the cold air passes through his nostrils and windpipe into the lungs, and consequently diminishes the heat of those parts. As long as the person continues in the cold air he feels no bad effects from it, but, as soon as he returns home, he approaches the fire to warm himself, and very often takes some warm and comfortable drink to keep out the cold, as it is said. The inevitable consequence is that he will first perceive a glow within his nostrils and breast, as well as over the whole surface of his body. Soon afterwards a disagreeable dryness and huskiness will be felt in the nostrils and breast. By and by a short, dry, tickling cough comes on. He feels a shivering, which makes him draw near the fire, but all to no purpose; the more he tries to heat himself the more he becomes chilled. All the mischief is here caused by the violent action of the heat, and the complaints which are thence produced might, with more propriety, be called heats rather than colds.

These complaints may easily be avoided by adopting the following rules:—When you come out of a very cold atmosphere you should not at first go into a room that has a fire in it, or, if you cannot avoid that, you should keep for a considerable time at as great a distance as possible, and, above all, refrain from taking warm or strong liquors when you are cold. This rule is founded upon the same principle as in the case of any part of the body being frost-bitten. If it were brought to the fire it would soon mortify, whereas if rubbed with snow no bad consequences follow from it. Hence, if the following rule was strictly observed—when the whole body, or any part of it, is chilled, bring it to its natural feeling and warmth by degrees—the frequent colds we experience in winter would, in a great measure, be prevented. The application of the flesh-brush to the neck and hands is, with this view, of great use. On the

other hand, the practice, after a cold is caught, of making the room the person sits in warmer than usual, increasing the quantity of bedclothes, wrapping himself up in flannel, and particularly drinking a large quantity of barley water, gruel, or tea, almost boiling hot, by way of diluting, as it is called, and forcing a perspiration—all this will infallibly make the disorder worse, in the same manner as confining inoculated persons in warm rooms would make their small-pox more violent.

In regard to the cure of a common cold, it depends on attention to temperature, diet, and medicine. In the early stages of a catarrh, rather a cold temperature, at least, one not exceeding from forty to fifty degrees, is the most likely to be salutary. The covering of the body also, both by day and during the night, should be as light as the external air will admit of.

A rigid attention to regimen is not necessary whenever a slight cold occurs; but if it increases, or continues for any length of time, stimulating food is to be avoided, in particular, wine and spirituous liquors. The solid food should be light and easy of digestion, and the liquid cooling, as toast and water, or acidulated soda water.

It is the more necessary to attend to these observations, as external cold generally constitutes the chief exciting cause of the epidemic and other prevailing diseases in Great Britain. At the same time, distempers of great malignity are much less usual here than in most countries on the continent.

Cold baths, and what is called "bracing air," do not appear to produce much tonic effect upon old or delicate persons; and besides, all sudden chilling of the skin repels the capillary circulation throughout the surface of the body, and drives the blood from the inward parts, which is always attended with danger to persons advanced in life.

Tepid baths may be recommended as no less pleasant than salutary, for ablutions of water have a constricting

influence upon the living fibres independently of temperature, an effect, perhaps, similar to that of crimping fish.

Fashionable watering places are not the places of resort for invalids. How large a proportion of the deaths which we see inserted in the public papers have occurred at sea-bathing places, whither, it is observed, the patient had gone for the benefit of his health! The more than ordinary expedition with which the destroyer executes his task, in those fashionable resorts of mingled gaiety and sickness, is strikingly exhibited to our view in their crowded records of mortality.

Many erroneous notions prevail respecting the influence of sea-air and change of climate in retarding consumption. The following conclusions are arrived at on this subject by M. Jules Rochard after a most elaborate investigation. His paper is published in the "Memoirs of the Academy of Medicine of Paris" for 1856.

1. Sea voyages accelerate the progress of pulmonary tuberculisatation much more frequently than they retard it.

2. This disease, far from being rare among marines, is, on the contrary, much more common among them than in the land army. It prevails with equal intensity in the hospitals of our ports, in our stations, in our fleets. The *officiers de marine*, the physicians, the commissaries—all who are afloat, in a word, are subject to this general law.

3. With rare exceptions, which must be admitted, considering some facts recorded by men of credit, phthisis advances on board ship with more rapidity than ashore.

4. The naval profession should be interdicted, in the most decided manner, to all youths who appear to be menaced with phthisis.

5. The consumptive can get no advantage from sea voyages, except they be on board under certain special hygienic conditions, and change climate and locality according to the seasons and atmospheric vicissitudes, things which cannot be realised on board of ships with

a mission to fulfil. Journeys by land, and prolonged stay in a well-selected country, allow of all the same objects being attained, with much less expense and danger.

6. Warm countries, taken as a whole, exercise an injurious influence on the progress of pulmonary tuberculation, and accelerate its course.

7. Those situated in the torrid zone are specially injurious, and a residence there should be interdicted to the phthisical. The opinions of the physician-in-chief of our colonies, and of the English colonies, comparative statistics of colonial and of European regiments in the two sets of countries, the frequency of phthisis in our tropical stations, and in those of England in the same latitudes, and a multitude of special observations, demonstrate this completely, and the examination of each particular locality confirms it.

8. Most hot climates situated outside of the torrid zone are equally injurious to the tuberculous. Some points on the confines of this region, and concentrated in a narrow space, are exceptions. This is owing to local conditions. To sojourn in them protects the phthisical from acute affections of the respiratory passages, which accelerate the progress of tuberculation, permits a mode of life better adapted to keeping up the general strength, prolongs existence sometimes, and contributes always to a more easy termination of the same.

9. It is in the first stage of phthisis that there is any hope from emigration, and any reason to expect good results from it.

The localities to be recommended to the consumptive, M. Rochard divides into four series, according to their respective advantages.

1. Madeira; 2. Hyères, Venice, and Pisa; 3. Rome, Nice, of which the reputation is constantly increasing; 4. Menton, Villa Franche, Bay of Spezzia, Lake of Como, the Balearic Isles, the shores of Greece, the north of Egypt, and Algeria.

"The most frequent and pernicious winds in England

are the easterly, especially the north-easterly winds, which in the winter are the most piercing cold, in summer the most parching hot." Such are the observations of an excellent old physician, Dr. Cheyne, who adds, "From the end of January till towards the end of May the wind blows almost perpetually from the eastern and northern points if the spring is dry, and from the southern and western points if the spring is wet; and generally, from the setting in of the winds on a new moon, you may predict the weather of the spring," &c. Hence he remarks that "tender people, on the setting in of the easterly and northerly winds, ought to change their bedrooms for others of westerly and southerly lights, and the contrary in wet seasons;" and also whilst "the dark, dull, foggy weather lasts at London in winter, tender people, and those of weak nerves and lungs, ought either to go into the country, or keep much at home in warm rooms, go early to bed, and rise betimes."

The advantages which attend "change of air" in the treatment of various diseases have been ascribed by many physicians to the exhilarating impressions thus produced upon the mind, and to the simultaneous change of habits which usually takes place on such occasions. There is no doubt that, in the recommendation of a place of resort for invalids, various circumstances are to be taken into consideration, among which it is no less important to furnish amusement for the mind than to provide salubrious air and wholesome food for the body. The genial excitement which a succession of novelties produces on the mind, to say nothing of the advantages which necessarily arise from the exercise of the body, is more likely to insure exhilaration and cheerfulness, and to break down the associations which continued disease will always engender, than a monotonous residence in a watering place, where, after the first few days, the patient becomes familiarised with the objects around him, the spell by which he is to be cured is broken,

and his mind is watching every pulsation in order to discover some indication of that returning health which he so anxiously anticipates. This truth is illustrated by an anecdote told of Sydenham. This great physician, having long attended a gentleman of fortune with little or no advantage, frankly avowed his inability to render him any further service, adding, at the same time, that there was a physician of the name of Robinson at Inverness, who had distinguished himself by the performance of many remarkable cures of the same complaint as that under which his patient laboured, and expressing a conviction that if he applied to him he would come back cured. This was too encouraging a proposal to be rejected. The gentleman received from Sydenham a statement of his case, with the necessary letter of introduction, and proceeded without delay to the place in question. On arriving at Inverness, and anxiously inquiring for the residence of Dr. Robinson, he found, to his utter dismay and disappointment, that there was no physician of that name in the place, nor ever had been in the memory of any person there. The gentleman returned, vowing eternal hostility against the peace of Sydenham; and, on his arrival at home, instantly expressed his indignation in no very measured terms at having been sent so many hundred miles to no purpose. "Well," replied Sydenham, "are you better in health?"—"Yes, I am now perfectly well, but no thanks to you."—"No," returned Sydenham, "but you may thank Dr. Robinson for curing you. I wished to send you a journey with some object of interest in view; I knew it would be of service to you: *in going, you had Dr. Robinson and his wonderful cures in contemplation; and in returning, you were equally engaged in thinking of scolding me.*"

There was more wisdom and address in this scheme than in that which was said to have been practised by Hippocrates, who sent his patients from Athens with no other object than to touch the walls of Megara, and then to return.

The best time for taking exercise in this country is, for the most part, between breakfast and dinner. Abernethy recommends the valetudinarian to rise when his powers have been refreshed by sleep, and actively exercise himself in the open air until he feels a slight degree of fatigue, while Dr. Paris forbids walking before breakfast as a debilitating, rather than an invigorating process. Nothing in the way of undeviating application ought to be advanced either in this or in any other part of regimen; but, in general, much exercise before breakfast is rather injurious than otherwise to the delicate and weakly.

The body in age must also have exercise, but not violent or exhausting. That which is rather passive will be the best, such as riding in a carriage and frequent friction of the whole skin. Violent shocks must particularly be avoided. These, in general, lay a foundation for the first cause of death. A pleasant frame of mind, and agreeable employment for it, are of great use in age; but violent passions which might derange it, and which in old age may occasion instant death, ought to be avoided. That serenity and contentment which are excited by domestic felicity, by the pleasant review of a life spent not in vain, and by a consoling prospect of the future, even on this side of the grave are the most salutary. The frame of mind best fitted and most beneficial to old age is that produced by intercourse with children and young people. Their innocent pastime and youthful frolics have something which tends, as it were, to renovate and revive.

It is of great importance to keep the feet warm, and woollen socks should be worn during the night, where there is a tendency to cold feet in the severer season. Invalids often complain of being kept awake and suffering actual pain from cold feet, and nothing can be more injurious than the effects of such abstraction of warmth to delicate people. Warm socks, or full length woollen stockings, should be always worn in such cases: if there is no tendency to cold feet, socks may be dis-

pensed with, and advantageously, for it is conducive to good health that the body should, during sleep, be freed from all unnecessary confinement in the shape of tight clothing or bandages.

Warm bedclothes are necessary to old people in order to preserve or increase their heat. From neglect to attend to this circumstance, in very cold countries the aged have often been found dead in their beds in the morning, after a cold night. Macklin, the player, when he was advanced in years, always slept in blankets for the sake of warmth.

The state of sinking is apt to come on in old age as it does in infancy, unattended and unpreceded by the symptoms of reaction. There are transient flushes of the cheeks, and an increased frequency of the pulse; yet the force of the arterial beat does not pass beyond that of health, but, on the contrary, becomes gradually more and more feeble.

Nothing can be more accurate than the description of this state by Sir Henry Hallford. He observes, "It sometimes comes on so gradually and insensibly, that the patient is hardly aware of its commencement. He perceives that he is sooner tired than usual, and that he is thinner than he was, but yet he has nothing material to complain of. In process of time his appetite becomes seriously impaired, his nights are sleepless, or, if he gets sleep, he is not refreshed by it. His face becomes visibly attenuated, or perhaps acquires a bloated look. His tongue is white, and he suspects that he has fever. If he asks advice, his pulse is found quicker than it should be, and he acknowledges that he has felt pains occasionally in his head and chest, and that his legs are disposed to swell, &c. Sometimes the headache is accompanied by vertigo, and sometimes severe rheumatic pains, as the patient believes them to be, are felt in various parts of the body, and in the limbs; but, on inquiry, these have not the ordinary seat nor the common accompaniments of rheumatism, and seem rather to take the course of the nerves than

of the muscular fibres. In the latter stages of this disease the stomach seems to lose all its powers; the frame becomes more and more emaciated; the cellular membrane in the lower limbs is laden with fluid; there is an insurmountable restlessness by day, and a total want of sleep at night; the mind grows torpid and indifferent to what formerly interested it; and the patient sinks at last, seeming rather to cease to live than to die of a mortal distemper."

Sir Henry Halford adds the following just remarks on the most usual causes of this state:—

"*Of the various immediate causes to which this malady may owe its commencement* there is none more frequent than a common cold. When the body is predisposed to this change any occasion of feverish excitement, and a privation of rest at the same time, will readily induce it. I have known an act of intemperance, where intemperance was not habitual, the first apparent cause of it. A fall, which did not appear of consequence at the moment, and which would not have been so at any other time, has sometimes jarred the frame into this disordered action. A marriage contracted late in life has also afforded the first occasion to this change; but, above all, anxiety of mind and sorrow have laid the surest foundation for the malady in its least remediable form."

Some diseases are apt to issue, even at a rather early period, in a state of sinking; in other cases sinking supervenes in the later stages of these diseases. This state seems sometimes to be the result of a direct influence of the disease in lowering the vital powers; sometimes the disease has subsided, but the state of sinking has continued and destroyed the patient; and sometimes the sinking has appeared to annihilate the morbid actions which constituted the disease, and thus to prove a cure, though a fatal one. In the latter cases the physician, whose eye is fixed upon the disease alone, and the friends of the dying patient, are apt, from the apparent truce in the actions or pains of the disease, to be led into a sanguine though delusive

hope that the patient is better; but this is only the calm that in so many instances precedes the approach of death.

For old men to spend the greater part of the year in the country, towards the conclusion of a busy and well-spent life, may prove a wise and happy conclusion to these sublunary scenes. Bacon justly remarks that a country life is well fitted for a long life; it is much abroad, and in the open air; it is not slothful, but ever in employment; it is without cares and envy.

In old age quiet is desirable, and agriculture is an occupation which is sufficiently interesting to command the attention, without agitating too much the passions of the human mind. Though, in the severity of winter, old age may feel both shelter and society in a town residence, yet during the favourable seasons of the year the country is preferable.

In our remarks upon the "government of the passions" will be found many suggestions which may be applicable to persons in advanced years. *Tranquillity of mind is conducive to longevity*; and age, with its mature and deliberate reflections, its patient and resigned submission to the decrees of Providence, may be serene to its evening's close. *Religion will be found the true staff in old age, the comforter under every circumstance of life*. With the assurance that this "mortal must put on immortality," and that the passing scene of our existence here is but the prelude to a glorious inheritance on high, sickness and age alike may cast off the weight of these infirmities, and welcome, when it is God's will, the summoner to a sorrowless land. Sir Thomas Bernard, in his "Comforts of Old Age," beautifully describes this condition of an aged Christian. Bishop Hough is supposed to address Mr. Lyttleton:—

"What are the faint glimmerings of unassisted reason compared with the divine light of revelation, which shineth more and more unto the perfect day? My strength declines, and my end approaches; but I

am most grateful that the moderate degree of understanding which God has been pleased to give me is not impaired, and I have a consoling hope that, when our Saviour shall come in all His glory to judge mankind, you and I, with all faithful people, shall, through the mercy of God and the merits of our Redeemer, find a place at His right hand.

"I have no doubt but that I have lengthened my life, and preserved my health, by the calmness and composure which I derive from frequent meditations on this subject ; for what can be more delightful and invigorating to the mind than to contemplate, with the eye of faith, a period, now no longer distant, when I shall arrive at the eternal mansion, where the glory of God shall lighten it, and the Lamb shall be the light thereof? The earthly house of this pilgrimage shall be dissolved, and I shall have a building of God, a house not made with hands, eternal in the heavens.

"With these contemplations present during the day, and always ready to tranquillise my waking hours at night, is it wonderful that I should, with so little suffering or anxiety, have advanced to my ninetieth year?"

Dr. Sancroft, who died at the age of seventy-seven, was a remarkable instance of this serenity to which we have alluded. The Rev. Dr. Wagstaff, who attended him in his last illness, observed that any man might read the pleasure in his breast by the composure and cheerfulness of his aspect. "It was indeed," he adds, "an unspeakable comfort and satisfaction to us, and we reflected on the mighty power of a well-spent life."

Cornaro, who died at Padua in 1566, while he was sitting in his arm-chair, being then above a hundred years old, is a well-known example of what regimen and correct principles will produce. The mild and equable temper, which he acquired by resolution and perseverance, appears to have had a great share in the health and vivacity which marked his latter course of life. Speaking of himself at the age of eighty-six, he says, "I was born with a choleric disposition, insomuch

that there was no living with me ; but I took notice of it, and considered that a person swayed by his passion must, at certain times, be no better than a madman ; I mean at those times when he suffers his passions to predominate, because he then renounces his reason and understanding. I therefore resolved to make my choleric disposition give way to reason, so that now, though born choleric, I never suffer anger entirely to overcome me."

In the account which this amiable old man gives of the occupations which filled up his time, there is something extremely pleasing and interesting, particularly when he speaks of the good health and spirits which he enjoys, and observes how gay, pleasant, and good-humoured he was ; how free from every perturbation of mind, and every disagreeable thought, in lieu of which joy and peace had so firmly fixed their residence in his bosom as never to depart from it.

"I contrive," he continues, "to spend every hour with the greatest delight and pleasure, having frequent opportunities of conversing with many honourable gentlemen—men valuable for their sense and good manners, their acquaintance with letters, and every other good quality. Then, when I cannot enjoy their conversation, I betake myself to the reading of some good book. When I have read as much as I like, I write, *endeavouring in this, and in everything else, to be of service to others to the utmost of my power.*

"My estate is divided by a wide and rapid branch of the river Brenta, on both sides of which there is a considerable extent of country, consisting entirely of fertile and well-cultivated fields. Besides, this district is now, God be praised, exceedingly well inhabited, which it was not at first, but rather the reverse ; for it was marshy, and the air so unwholesome as to make it a residence fitter for snakes than men. But on my draining of the waters the air mended, and the people resorted to it so fast, and increased to such a degree that it soon acquired the perfection in which it now appears :

hence I may say, with truth, that I have offered on this place an altar and temple to God, with souls to adore him. These are things which afford me infinite pleasure, comfort, and satisfaction as often as I go to see and enjoy them. At the same season every year I revisit some of the neighbouring cities, and enjoy such of my friends as live there, taking the greatest pleasure in their company and conversation; and by their means I also enjoy the conversation of other men of parts, who live in the same places, such as architects, painters, sculptors, musicians, and husbandmen, with whom this age most certainly abounds. I visit their new works, I revisit their former ones, and I always learn something which gives me satisfaction. I see the palaces, gardens, antiquities, and with these the squares and other public places, the churches, and fortifications, leaving nothing unobserved from whence I may reap either entertainment or instruction. But what delights me most is, in my journeys backwards and forwards, to contemplate the situation and other beauties of the places I pass through; some in the plain, others on hills, adjoining to rivers and fountains, with a great many fine houses and gardens. Such are my genuine and no trifling satisfactions—such are the diversions and recreations of my old age, which is so much the more to be valued than the old age, or even youth of other men, because, being freed by God's grace from the perturbations of the mind and the infirmities of the body, it no longer experiences any of those contrary emotions which torment a number of young men, and many old ones, destitute of strength and health and every other blessing."

His diet consisted of bread, meat, eggs, and soup. He was very temperate in point of quantity, not exceeding in the day three quarters of a pound of food and a pint of new wine. He adopted this regimen, finding it best agree with his stomach, which was naturally weak. To others he recommends more variety and quantity of food if they find it agree with them. His preference

of new wine was occasioned by wine of more than a year old not so well agreeing with his stomach. He passed with health and comfort beyond his hundredth year, and died, as he had lived for his last threescore years, exempt from pain and suffering.

Sir John Floyer, physician to Queen Anne, is another remarkable instance of serenity in old age. In one of Bishop Hough's letters he states, "Sir John Floyer has been with me some weeks, and all my neighbours are surprised to see a man of eighty-five who has his memory, understanding, and all his senses good, and seems to labour under no infirmity. *He is of a happy temper, not to be moved with what he cannot remedy*, which, I really believe, has, in a great measure, helped to preserve his health and prolong his days."

The same admirable philosophy, animated by the truest piety, was exemplified by Bishop Gibson, who, in a letter to a friend four days before his death, thus expresses himself:—

"I lately saw the day when I entered into the ninety-third year of my life, and I thought it a very proper season to make particular inquiry into the state of it. I found the last year to have impaired every faculty of mind and body more than I could have imagined, and by such imperceptible degrees, that I was not aware how treacherously it stole upon me, and what deep impressions it had made, till the several items of my loss came together in full view, and then it appeared I had suffered so much as left little to support the remainder of life. I think it can be but of short duration, and I thank God the prospect gives me no uneasiness." His dying words to some of his friends and neighbours who attended the bishop in his last moments were, "*We part to meet again, I hope, in endless joys.*" It was observed by a person then present that, "as he had on former occasions expressed his well-grounded hopes of immortality, so they gradually grew stronger upon him, and seemed to be more vigorous in proportion to the decay of his body."

CHAPTER XVII.

GOVERNMENT OF THE PASSIONS.

" Behold the image of mortality,
 And feeble nature clothed with fleshly tire,
 When raging passion with fierce tyranny
 Robs reason of her true regality,
 And makes it servant to her basest part !
 The strong it weakens with infirmity,
 And with bold fury arms the weakest heart ;
 The strong, through pleasure, soonest falls, the weak
 through smart."

SPENSER.

" Oh, how the passions, insolent and strong,
 Bear our weak minds their rapid course along,
 Make us the madness of their will obey,
 Then die, and leave us to our griefs a prey !"

CRABBE.

" 'Tis the great art of life to manage well
 The restless mind."

ARMSTRONG.

It is certain that the passions were given for wise and useful purposes, but they must be kept under the strictest and most complete subjection. If uncontrolled and left to themselves, they affect us as a tempest does the ocean, without our being able to counteract their pernicious influence. Fortunately they may be regulated by education, by early restraint, or by unwearied personal attention, founded on the full conviction of its necessity. At the same time each individual has a natural disposition or turn of mind born with him.

The passions do not act with equal force on all. Their

effects vary according to the diversity of constitution, both of mind and of body, and even in the same individual differ at different times.

Sometimes men while in the vigour of life subdue an untoward disposition, finding it necessary for their success and advancement; for enabling them to live comfortably in society; for preventing quarrels and their consequences; from the strictness of martial discipline and other causes; and yet after they get old, and fall into a valetudinary or diseased state, lose their good humour, lay aside their former calmness of temper, and become fretful and irascible. This should be checked, if possible, at the commencement; for by the indulgence of any unruly passion the disorders of old age are greatly aggravated, and they will find too late that to retain, when once acquired, a dominion over our passions and affections, is an essential and indispensable requisite to health.

There is no doubt that, by the due regulation of the passions, many fatal disorders might be prevented. Every-day experience points out how frequently giving way to passion occasions the most dreadful disorders. Anger carried to an extreme often terminates in fury and madness, grief, anxiety, and despair, and occasions melancholy and all its baneful consequences. There is, however, no emotion of the mind which, with a view to health, it is so necessary to overcome as that of fear. It has justly been called a base passion, and beneath the dignity of man. It robs him of power, reflection, resolution, judgment, and, in short, of all that pre-eminence which the human mind ought to enjoy.

Fear also has great influence in occasioning and aggravating diseases, and in preventing their cure. By depressing the spirits, fear not only disposes us to disease, but often renders those diseases fatal which an undaunted mind would overcome. Indeed, the constant dread of some future evil, by dwelling on the mind, often occasions the very mischief which was so much apprehended. Timorous persons are also more readily

infected by epidemical disorders than those possessed of true courage, because fear not only weakens the energy of the heart, but at the same time increases the susceptibility of receiving contagion. It increases the malignity of diseases, changes their natural course, aggravates them by a thousand incidental circumstances, and the efforts of nature being thus suppressed, nothing but a speedy dissolution can be looked for. Experience tells us that many perish from despondency, who, if they had preserved their spirit and vigour of mind, might have survived many years.

Bacon remarks that "*any agitation of mind prevents the benefits which we ought naturally to derive both from food and rest.*" He therefore recommends that if any violent passion should chance to surprise us, either when we sit down to our meals or compose ourselves to sleep, to defer eating or going to bed until it subsides.

It is of the highest importance to health, we repeat, to preserve the tranquillity of the mind, and not to sink under the disappointments of life, or give way to the turbulence of the passions, for nothing injures more the nervous system, and more effectually disturbs the digestive powers of the stomach, than the influence of the various mental affections, such as fear, grief, anxiety, disappointment, anger, despair, rage, or any other violent passion, whether sudden or attended by protracted painful sensations. When they become vehement and immoderate they disorder the body in various ways, chiefly by their impression upon the nervous system, and by their accelerating or retarding the circulation of the blood and the various secretions.

From the influence of the passions upon the system when they are allowed to escape from under the control of reason, a large proportion of the most dreaded diseases to which human nature is subject originate. They increase also the malignity of disease, change its ordinary course, and aggravate it by a

thousand incidental evils. During the prevalence of epidemics, as we have before observed, they augment in a considerable degree the susceptibility to an attack. The author of "Anson's Voyage round the World" observes, "that seamen afflicted with the scurvy become cowards, and are terrified at the most trifling causes." He also observes that, when any adverse fortune happened which lessened their hopes of a prosperous return to their country, the violence of the disease was immediately increased, so as to strike with death those that were in the last stage of it; and others who, though languid, could yet do some duty, were instantly obliged to take to their beds.

But while the indulgence of the passions injures, in various ways, the health both of the body and the mind, a *calm, contented, cheerful disposition is invariably a fruitful source of health*. Lord Bacon assures us that "a cheerful tone of mind helps digestion more than is imagined," and all know the saying of Solomon that "a merry heart doeth good like a medicine, but a broken spirit drieth the bones." The stimulus of the joyous and gently exciting passions, in suspending the incipient symptoms of various diseases, is often almost miraculous, while, during the course of a severe and protracted complaint, a favourable or unfavourable issue is often mainly determined by the nature of the mental emotions indulged in by the patient.

For the due preservation and enjoyment of health observe fair play between cares and pastimes; increase all your natural and healthy enjoyments, cultivate your evening fireside or domestic circle, the society of your friends, the company of agreeable children, music and amusing books, an urbane and a generous gallantry. He who thinks any innocent pastime foolish (none but the innocent can be healthy), has yet either to grow wise or is past it. In the one case his notion of being childish is itself a foolish notion; in the other, his importance is of so feeble and hollow a cast that he dares not move for fear of tumbling to pieces.

Bishop Butler has the following excellent observations, important no less to those who would enjoy vigorous bodies, than to others who desire a serene mind and quiet conscience.

"I know not that we have any one kind or degree of enjoyment but by means of our own actions. And by prudence and care we may, for the most part, pass our days in tolerable ease and quiet; or, on the contrary, we may by rashness, ungoverned passion, wilfulness, or even by negligence, make ourselves as miserable as we please. And many do please to make themselves extremely miserable, *i.e.*, they do what they know beforehand will render them so. They follow those ways, the fruit of which they know by instruction, example, experience, will be disgrace and poverty, and sickness and untimely death."

There is nothing, perhaps, which contributes more to longevity than the proper regulation of the passions. The animating affections, as joy, hope, love, &c., when kept within proper bounds, gently excite the nervous system, produce an equable circulation of the blood, and are highly conducive to health; while the more violent and depressing passions, as anger, ambition, jealousy, fear, grief, and despair, produce the contrary effects, and lay the foundation for the most formidable diseases. In the instances of the Emperor Valentinian I., Wenceslas, Matthias Corvinus, King of Hungary, and others, a violent fit of anger, as history informs us, caused very speedy death.

Perhaps there is nothing more troublesome to the possessor than an obstinate disposition. Half the evils of life arise from a dogged indifference to the opinions of others, and a determination to follow, at all hazards, the bent of our own will. History affords numerous examples of the evil consequences which have resulted from humouring this pernicious passion.

Dr. King, in speaking of the fatality which attended the house of Stuart, says, "If I were to ascribe their calamities to another cause (than an evil fate), or

endeavour to account for them by any natural means, I should think they were chiefly owing to a certain obstinacy of temper, which appears to have been hereditary and inherent in all the Stuarts excepting Charles II."

The mental influences which can counteract any baneful tendency of the passions are many and various. They will be found in the pursuit of *virtue*, which, as Virey remarks, as it preserves an equilibrium among our passions, maintains, by moral health, our corporeal vigour. In the study of nature, God's open volume of goodness and beauty, we may gain a serenity of mind that will place us above the stormy clouds of intemperate passions. The poet admirably describes this happy state in the following lines :—

" I care not, Fortune, what you me deny;
You cannot rob me of free Nature's grace;
You cannot shut the windows of the sky,
Through which Aurora shows her bright'ning face;
You cannot bar my constant feet to trace
The woods and lawns, by living stream, at eve:
Let health my nerves and finer fibres brace,
And I their toys to the great children leave:
Of fancy, reason, virtue, nought can me bereave!"

CHAPTER XVIII.

UNHEALTHY EMPLOYMENTS.

"Ill fares the land—to hastening ills a prey,
Where wealth accumulates and men decay."

"By day, by night, the poison they inhale
Of subtle gas, or atmosphere oppress'd ;
Morn sees them rising unrefresh'd and pale,
From a brief interval of fever'd rest !"

MARY ANNE BOURNE.

THE UNHEALTHY EMPLOYMENTS OF OUR LABOURING CLASSES, which occasion a loss of human life, it is fearful to contemplate, arise in many cases from ignorance or neglect of the plainest hygienic principles. It is surprising that, while statistics furnish us with convincing proofs of the danger or the noxious influence of certain occupations, and while science lends its aid to suggest remedies, so little attention is paid to the subject by employers, or by the workmen themselves, who go on from day to day breathing the subtle poison which is gradually wasting them away, indifferent to the antidote which would remove its fatal influence, reckless of the present, careless of the future, in too many cases hastening the approach of death by gross intemperance and folly.

The Industrial Pathology Committee, in connection with the Society of Arts, has taken up the subject of dangerous and unhealthy employments, and the results of their labours must undoubtedly insure a better

knowledge of the evils arising therefrom, and the proper measures to be taken for their remedy; but it is a singular fact that, notwithstanding the most vigorous measures have been taken to obtain information in the manufacturing districts, by means of circulars inviting co-operation, little notice has been taken by those most interested in the inquiries, and the praiseworthy endeavours of the society have been, in most cases, treated with silent indifference. It is difficult to conceive such conduct in the presence of so many endeavours that science is making for the amelioration of unhealthy labours. To such men as Dr. Guy, Dr. Chambers, Dr. Waller Lewis, Mr. Simon, Mr. Twining, and others, a feeble acknowledgment can only be rendered for the humane and enlightened spirit of investigation which they have brought to bear upon the painful lot of the workman. The general registry of the empire serves to keep the subjects of poverty, distress, and disease before the public, while the sanitary commissions point out by examples the means of averting disease. So far the government works wisely; but greater activity and a more direct supervision over noxious trades and occupations are needed, and we are induced to believe that a Public Health Commission, similar to the department of the *Hygiène Publique et Salubrité* at Paris, will not be long withheld. The advantages of the French system are explained in a valuable report on the sanitary laws and ordonnances in force in France, presented to Parliament by the medical officer of the General Post-Office, Dr. Waller Lewis, which is well worthy the attention of the philanthropist and the political economist.

One great evil to workmen, and a principal source of disease among them, is the UNWHOLESOME CONDITION OF THEIR DWELLINGS. Until this is remedied, and wise sanitary measures adopted, the humanity of science can but imperfectly perform its mission in lessening the risks that are encountered in the workshop. It is computed that, among the working population of Liverpool

living in cellars, one person in every twenty-five is annually attacked by fever, a consequence of the wretched condition in which they exist. They reside, generally, in narrow, dirty streets, while such as are employed in-doors are exposed to impure air, arising from want of ventilation, exhalations from sewers and drains, and from the masses of refuse matter, which, for want of proper receptacles, are left in the yards and rear of houses, to spread their pestilential vapours on every side. Mr. Simon states that the City of London is behindhand in public baths, public laundries, and model dwellings. Nowhere is the high-class artisan so ill-housed, or, to speak more properly, ill-lodged; nowhere does he find cleanliness of person and of clothes so difficult and so costly. In the whole city of London there is hardly a place where a poor man can lodge himself, much less where he can place a family, without constant and immediate contact with unutterable nuisances.

About 77,000 children are born in London annually. Such arrangements of the houses, and of the squares and open spaces, should, therefore, be progressively made, as it is known by experience are conducive to the health, vigour, and efficient training of children. Facilities for the distribution over wider areas, and for the periodical concentration of the town population, can be made by the agency of the railways; and, as the working people go and return to the shops at regular hours, they may evidently be conveyed at as little cost as any kind of merchandise.

What is also requisite is the BETTER EDUCATION OF FEMALES in the arts of domestic economy. To the extreme ignorance of domestic management on the part of the wives of the mechanics much of their misery and want of comfort are to be traced. Many a confirmed drunkard attributes his habits of dissipation to a wretched home, and a respectable working man is rarely met with, whose house is not managed by a prudent and respectable wife.

Here, then, lies the remedy for much of the mischief and unhappiness that accompany poverty. Training schools should be generally established, in which girls might be instructed in household duties, and thus enable them to become, later, useful helpmates instead of encumbrances to labouring men. The good work is already commenced. Miss Burdett Coutts, with that enlightened discernment which has distinguished her liberality, has established an institution of a useful and practical character, where young females will be taught home duties, such as befit them for the class of society in which they may be placed. No doubt the attention of government will be directed to this all-important subject, and the endeavours that are being made by philanthropic individuals for the same object will be promoted in every possible way.

While it cannot be doubted that many arts and manufactures are injurious to health, these evil consequences, as well as hereditary predisposition to disease, are promoted by **INTEMPERANCE**, and that this deadly habit occasions more disease and death to mechanics than the various employments of all the manufactories combined. One half of the week is often spent in the public-houses, and, in order to obtain subsistence and pay for his debauchery, the workman is obliged to work night and day.

The **DRESS OF WORKMEN** requires particular attention, for the impurities that are collected in the clothes from dusty employments, unless removed, affect the general health of the wearer considerably. Labourers are generally very faulty in this respect. Their linen is not changed sufficiently often, and they are not clothed enough. Those engaged about furnaces, exposed to intense heat, are too indifferent about the sudden change their bodies undergo on leaving their work, and do not prepare themselves for it, frequently bringing on catarrhs, pleurisy, and rheumatic affections.

The **AGE** at which laborious employments are com-

menced is another fruitful source of disease. In Birmingham, except in pin manufactories and a few others, it is by no means an uncommon occurrence for children, under ten years of age, to be employed in manufacturing processes in the workshops. When they are made to labour at so early an age the development of the frame appears to be impeded. Such individuals, when arrived at maturity, are generally short in stature, and their muscles unequally evolved. In the selection of a trade for the young of both sexes, disregard is too frequently paid to hereditary or peculiar predisposition to disease. Inattention to this circumstance oftentimes casts unmerited disrepute upon comparatively harmless occupations.

More evil effects, perhaps, arise from the condition of the WORKSHOPS than from the processes carried on in them. These are generally too small, frequently damp and badly glazed, but almost always imperfectly ventilated. Some of the large modern manufactories are peculiarly well suited to the purposes for which they have been erected; but for the most part the shopping is in the unceiled roofs of ill-constructed buildings, and is suffocatingly hot in summer, and very cold in winter.

M. Lombard, of Genoa, has computed that in a thousand deaths consumption has furnished the following proportions:—In occupations subject to mineral and vegetable emanations, 176; with various dusts, 145; with sedentary life, 140; with workshop life, 138; with hot and dry air, 127; with stooping posture, 122; with sudden movements of arms, 116; with muscular exercise and active life, 89; with exercise of the voice, 75; living in the open air, 73; with animal emanations, 60; with watery vapour, 53. M. Lombard finds phthisis in a much larger proportion among the workmen in narrow, close localities, than among professions carried on in vast spaces well aerated.

It appears that the inhalation of coarse particles is less dangerous than that of dusts finely divided, which

penetrate more easily into the last ramifications of the air cells.

Dust from hard substances causes a much greater number of consumptive cases than dust from soft bodies. The specific gravity of the dust does not affect in any marked manner the production of phthisis. Mineral dust is the most noxious to the lungs; then follow animal dust, and lastly, vegetable.

The injurious action of the stone dust and foreign particles of matter upon the lungs of MASONS, has occasioned fearful ravages among this class of workmen, who number somewhere about 3000 in the metropolis. Phthisis occurs in a few years, unless proper precautions are taken. In the anatomical museum of the Edinburgh college are the lungs of a mason who died at the age of forty-five. The air passages, as shown by the dissection, were literally blocked up with fine particles of dust—the accumulation of many years. The use of close sheds for the workman conduces to this evil, and yet it is difficult to persuade him out of the old established belief that the closer his doors are, the greater is his comfort. The beard and moustache, as means of arresting dust, and preventing its inhalation, have been productive of great benefit to masons, and all who are exposed to similar evils: several hundred stonemasons of Edinburgh have adopted these protections. It has been found, in the treatment of diseased eyes from dust, &c., with shaven faces, that there is frequently a weakness in the organ of vision from the latter cause. On the growth of the beard, when the affection of the eye is cured, the weakness disappears, and many whose eyes were before diseased through the nature of their occupation, after obtaining beard and whiskers were exempt from a return of eye affections.

Sawyers and other hewers of freestone or other fossil masses, glass-cutters, china manufacturers, lapidaries, and workers upon metals are often subject to dyspnoea, from having the lungs loaded with fine pulverulent particles, detached from the materials on which

they are employed, and floating in the atmosphere that surrounds them. To these may be added millers, starch-makers, horn and pearl workers, needle, edge-tool, and gun-barrel grinders, and, for a like reason, weavers, wool-carders, and feather-dressers. Where the lungs are peculiarly irritable, a troublesome cough will ensue from the first, before any considerable quantity of buoyant particles can have entered into the bronchiæ; but where there is little irritability, no cough demanding particular attention has shown itself for years, and the lungs, from a habit of exposure to the same influence, have betrayed no uneasiness till they have gradually been transformed into almost a mine or quarry of the material worked upon.

GRINDERS' ASTHMA is a term given to the disease by the patients themselves, and is, in fact, that form of consumption which prevails among the workmen who are employed in grinding the various kinds of cutlery in Sheffield and its vicinity. The articles which are ground at these places are forks, awl-blades, fire-irons, razors, scissors, penknives, table-knives, pocket-knives, files, joiners' tools, saws, sickles, and scythes. Some of these are ground on dry stones, others on wet grind-stones; hence the grinders are divided into two classes, the dry and the wet grinders, and there is a third class who grind both wet and dry. The dry grinders die from twenty-eight to thirty-two years of age. The razor-grinders grind both wet and dry, and they die from forty to forty-five years of age. The table-knife grinders work on wet stones, and they live to between forty and fifty years of age.

Various contrivances have been devised for straining off the floating particles from the air inhaled, and thus producing a preventive. Dr. Johnstone long ago proposed a muzzle of damp crape for this purpose, Dr. Gosse a sponge, and M. D'Arcet an apparatus which he calls a *fourneau d'appel*; but, for workers in steel and iron, one of the most ingenious is a peculiar kind of magnet, that concentrates the metallic spiculæ, and

thus prevents them from floating loosely in the inspired air. It is an invention of Mr. Abraham, of Sheffield, and has justly met with the approbation of the Society for the Encouragement of Arts.

This life-preserving apparatus was, however, never generally adopted by the grinders, on account of the trouble of arranging the magnets, and of removing the dust as it collected upon them; besides, it was the metallic particles which the magnets were chiefly calculated to arrest, and there is reason to believe that the grit dust is not only the most copious, but also the most injurious part of what is inhaled by the grinder. Mr. Abraham next invented a contrivance which has been found peculiarly beneficial. This consists of an additional apparatus, which is formed of a piece of coarse sacking or flannel attached to a frame of wood; this is placed before the stone, and closely behind the safety guard of magnets, so as to secure all the dust which they had failed to arrest. The sacking or flannel is kept constantly wet, and the dust is shaken out of it frequently.

SORTERS OF TEA are said to incur some risk in the pursuit of their occupation. Dr. Lettsom relates that an eminent tea-broker, Mr. Marsh, after having examined in one day upwards of one hundred chests of tea, only by smelling at them forcibly, in order to distinguish their respective qualities, was the next day seized with giddiness, headache, spasms, besides the loss of speech and memory. With proper assistance the symptoms abated, but he did not recover; for though his speech returned, and his memory in some degree, yet he continued with unequal steps gradually losing strength till a paralysis ensued, then a more general one, and at length he died. Whether this was owing to the effluvia of the tea may, perhaps, be doubted.

The same author states that an assistant to a tea-broker had frequently, for some weeks, complained of pain and giddiness in his head after examining and mixing different sorts of tea. The giddiness was some-

times so considerable as to render it necessary for a person to attend him in order to prevent any injury he might suffer from falling, or other accident. He was bled in the arm freely, but without permanent relief: his complaint returned as soon as he was exposed to his usual employment. At length he was advised to be electrified, and the shocks were directed through his head. The next day his pain was diminished; but the day after closed the tragical scene. Whether the effluvium of the tea or electricity was the cause of this event (adds the doctor) is doubtful. Dr. Thornton, however, says in his "Herbal," "In addition to the foregoing, let me add the testimonies of Mr. Venn and Mr. Wright, who are smellers and tasters to the East India Company of the teas which have been imported, and place marks on each chest of tea. These gentlemen have been employed upwards of forty years, sometimes in a morning tasting seventy cups of all sorts, and after that smelling often from seven to eight hundred chests of tea, and these gentlemen never found anything in teas at all prejudicial to their health."

Dr. Wiltshire states that tea-sorters, in common with furriers, brass-founders, &c., are subject to chronic bronchitis, with symptoms resembling phthisis in early life, as the result of the nature of their employment.

It has been observed that WORKMEN IN TOBACCO MANUFACTORIES are not subject to the complaints just described, although tobacco is of so irritating a nature. This may arise from tobacco acting on the nervous system, and not mechanically.

The results of the government inquiries at Leeds show that persons in independent circumstances are generally the longest livers; next come out-door, then in-door labourers and handicraft, then trades, then workers in woollen-mills and flax-mills, and lastly, persons of sedentary occupations, which seem to be the most fatal employments of all. By another form of arrangement, taking trades merely, and without referring to particular classifications, it is found that the

order of healthiness begins with gardeners, and then goes on to saddlers, booksellers, labourers, charwomen, brickmakers, bricklayers, upholders, bakers, joiners, cabinet-makers, linen-drappers, carvers, butchers, blacksmiths, and ends with cloth-dressers; and that the order of unhealthiness begins with flax-mill workers, and then goes on with dress-makers, clerks, woollen weavers, flax-dressers, carvers and gilders, tobacconists, chemists, cap-makers, turners, excavators, and ends with braziers. The effects of labour upon longevity may be stated:—Of persons having sedentary occupations, such as accountants, clerks, milliners, dress-makers, and the like, only 2 out of 1586 are found alive at 70 years of age; and yet these are persons who, for the most part, are not subjected to the local influences which affect the dwellings of the lower classes. Of the persons employed in flax-mills not one out of 2079 is found alive at 70; whilst out of 2028 labourers, including 169 agricultural labourers, there are 39 males, and out of 110 gardeners there are 10 males, who have reached this period of life, or who have exceeded it.

To these statements we may add a calculation from the tables of the Institution for Sick Mechanics at Wurtzburg of the different degrees of health enjoyed by those who sit, and those who stand at their work. Of those who always sit, 2,577 in 10,000 sicken annually, and 99 die; of those who work in a stooping position 2,858 sicken, and 95 die; while of those who alternately sit and stand 1,713 sicken, and 61 die.

The effect of AGRICULTURAL EMPLOYMENTS upon boys is generally healthful. While fifty per cent., or one-half of all the children born in the urban districts are swept off before they attain five years of age—in fact, before they attain an average of one year and a half—only thirty-six per cent. die in the suburban districts. If the latter are weak and sickly, the exposure to wet and cold weather is prejudicial to them, when such exposure is excessive, particularly when they are scrofulous. Above the age of twelve, field labour tends to develope

the person and strength. Over-fatigue, however, produces inflammation of the knee joints, periostitis, and rheumatism. Chilblains are common, but these disappear in the spring. The low diet which sometimes ensues from a reduction of wages, has a distressing effect upon the physical condition of agricultural labourers, producing indigestion in its various forms, waterbrash, and other diseases of the stomach; also general debility, liability to fever, slow and difficult recovery from any disease. The want of proper clothing and fuel is also the cause of much sickness. Personal cleanliness is much neglected; many will wear a flannel waistcoat, if they have one, night and day for a month, or even until it is worn out. The cottages are generally ill ventilated, and frequently damp. We may add, another source of discomfort to the agricultural labourer arises from the utter want, in most cases, of domestic economy. The women generally have no knowledge of cooking, or of anything else to increase the comforts of their lives. To this source of many evils we have already alluded.

The effects of OUT-DOOR FARM LABOUR upon grown up women appears, on the whole, to be beneficial: no other effects upon their general health are perceptible, than rheumatism and catarrhs caught from wet and exposure to the weather. When women have no out-of-door exercise, chlorosis, constipation, and indigestion occur, which are very uncommon with women employed in agricultural labour. The severest labour performed by women, connected with agriculture, is in the dairy farms. The work lasts during the principal part of the year, and for many months occupies the greater part of the day. Milking and making cheese twice a day are very fatiguing. Looking after, cleaning or wiping cheeses, weighing frequently a quarter of a hundred-weight, and which have to be turned and moved from place to place, is often followed by pains in the back and limbs, overpowering sense of fatigue, most painful in the morning, want of appetite, feverishness, &c.

HOP-PICKING, although very laborious, is by no

means unhealthy, except in a wet season, when standing upon the ground saturated with moisture induces disorder of the digestive functions, commonly showing itself in diarrhoea. In fine autumns hop-picking is sometimes recommended to weak persons by medical advisers, and is very invigorating.

Next to agricultural labourers, the class engaged in the MANUFACTURE OF CLOTHING is the most considerable, and of this class the weavers form one of the largest sections. In the weaving trade there are four principal divisions, comprising SILK WEAVERS, COTTON WEAVERS, LINEN WEAVERS, AND WOOLLEN WEAVERS. Each of these branches has many ramifications.

Weaving, as a domestic occupation among the hand-loom cotton weavers, is carried on in circumstances more prejudicial to health, and at a greater sacrifice of personal comfort, than weaving in any other branch. The great majority of hand-loom cotton weavers work in cellars, sufficiently light to enable them to throw the shuttle, but cheerless because seldom visited by the sun. The reason cellars are chosen is, that cotton, unlike silk, requires to be woven damp. The air, therefore, must be cool and moist, instead of warm and dry. They frequently work in cellars dug out of an undrained swamp, the streets formed by their houses are without sewers, and flooded with rain; the water running, therefore, down the bare walls of the cellars, renders them unfit even for the abodes of dogs and rats.

The woollen weavers, when fully employed, earn individually higher wages upon the average than plain silk weavers; but the labour of women and children is not so available in this branch of the trade as in others. The loom required for weaving blankets or broad-cloth is of great width and of corresponding strength; the labour, therefore, is much more severe than in weaving light and narrow fabrics of silk or cotton, and the physical powers of a woman would be unequal to the muscular exertion required.

Dr. Ure, in his "Philosophy of Manufactures," ob-

serves, "EMPLOYMENT IN A COTTON-MILL may be, and generally is, as salubrious as any other which the children of labour can obtain in the present state of the world. I should wish, however, to see warm baths attached to every cotton factory. They could be supplied, without trouble or expense, with the pure hot water discharged from the steam pipes which traverse the apartments." "When the perspiration," says an eminent physiologist, "is brought to the surface of the skin, and confined there, either by injudicious clothing or want of cleanliness, there is much reason to suppose that its residual parts are again absorbed, and act on the system as a poison of greater or less power, according to its quantity and degree of concentration, thereby producing fever, inflammation, and even death itself."

One of the most insalubrious parts of cotton factories is that where the beating of raw cotton takes place. This operation, whether done by hand or machine, produces a thick cloud of irritating dust, and of cottony down, which finds its way into the nose, mouth, and throat, and also into the minute ramifications of the air-tubes. This insalubrity is so generally recognised, that in many mills, especially in those of Alsace, where the beating is performed by machinery, and employs, consequently, but few men, the workmen in the carding rooms are successively, and in turns, employed in looking after the beating, like soldiers mounting guard. The cough which succeeds a dryness of the throat in men thus occupied, is the symptom of a slow and formidable disease of the chest, which is always relieved by simple cessation from this kind of work, and which, at the commencement, is cured by abandoning altogether the beating room.

In consequence of the particular attitude in which TAILORS work, constantly sitting, the legs crossed, and the body bent forward, there arises on both sides a red swelling, more or less extensive, sometimes as large as a walnut, and very soft, on the outer ankles; a

second tumour, resembling, but smaller than the former, on the outer border of the foot ; also a reddish-coloured hardness on the toes. The spine, also, is generally curved. Disorders of the stomach and bowels are general, and often obstinate. Pulmonary consumption is also frequent. The number of tailors in Great Britain, according to the census of 1851, was 152,672. It is to be hoped that stitching machinery will effect a great change in the physical condition of tailors ; indeed, those who are sanguine in its results declare that it will "supersede completely all hand-sewing, and that such sewing, as an occupation for either man or woman, tailors or sempstresses, will be gone for ever." And such, we trust, will be the result, if the deplorable consequences of sedentary labour, such as we have described, are not ameliorated. Machinery has hitherto befriended the working classes. The spinning-jenny, instead of depriving women of employment, provided it for them, so that where tens made a living by hand-spinning on the distaff and the wheel, hundreds earned a better subsistence by the spinning-jenny.

BOOT AND SHOEMAKERS, from their stooping posture, are much subject to consumption and other pulmonary complaints, indigestion, and heartburn. A remedy has been found for these evils by the construction of an upright bench, by which the sitting posture and the pressure of the last are avoided.

BAKERS are subject to disorders of the stomach, to cough, and rheumatism, the two former arising, most probably, from the dust which is largely inhaled. Consumption is so common among them, that both sugar and bread bakers chiefly employ Germans, who are better able to support the great heat and debility to which they are exposed. These patient foreigners, after having saved a little money by their salamandrine exertions, return to their country, and enjoy it tranquilly. In a report of the Institute of Hamburg, quoted by Thackrah, it is stated that acute rheumatism attacks one-sixth of the bakers, whilst it only shows itself in one-fifteenth

of the tailors. The paleness of the bakers' journeymen arises from the anæmic condition peculiar to all artisans who live in a very hot atmosphere. This influence, in conjunction with the smell given off by heated paste, doubtless contributes to predispose bakers to dyspepsia. The irritating matters mixed with the flour, such as remains of insects, different pellicles, perhaps, also, the contact of the yeast, cause a squamous eruption to show itself on the hands. The intense excitement of the retina of the eye in oven work frequently produces chronic inflammations of the outer coverings of the eye.

Their place of working is generally underground and unventilated, and many of them sleep in these dens. The air which they breathe is frequently rendered impure by the defective state of the drainage, and by the suffocating gusts which are encountered at the oven's mouth. The gas and the heat lend their influence to these exhausting evils. The lifting and carrying of heavy weights, to men thus enfeebled and exhausted by the nature of their employment, are very pernicious. To these unwholesome influences we must add long hours of work, extending through the whole night and great part of the day. Dr. Guy, who has made inquiries on this subject, states, that when he came to add all the disorders together which had been mentioned to him by bakers, he found that they amounted to no less than 125, distributed among 111 men, or more than one to each man.

It will be seen that almost all the evils enumerated here may be remedied by having well-ventilated workshops, better drainage, more light and more air, and cleanliness.

The occupation of a BUTCHER is usually considered one free from most of the ailments that afflict humanity. This is, however, an error. The extraordinary mortality of butchers is a fact for which we are indebted wholly to the last census. The "red-injected face" of the butcher has produced a wrong idea as to the healthy nature of his occupation. This supposition is now

corrected by scientific induction, and proper sanitary measures will overcome the evil. To quote the significant remarks in the report conveying the fact, here is an important problem for solution. On what does the great mortality of the butcher depend? On his diet, into which too much animal food and too little fruit and vegetables enter? On his drinking to excess? On his exposure to heat and cold? or, which is probably the most likely cause, on the elements of decaying matter by which he is surrounded in his slaughter-house and its vicinity? Owing to the want of some compulsory system of extra-mural slaughter-houses similar to the *abattoirs* in France, the butchers in England inflict injury, not only on themselves, but on others: the private slaughter-houses are too often scenes of filth and disorder which it is painful to record. Nothing can be more admirable than the French mode. The *abattoirs* established by Napoleon I. in 1810 are five in number—Montmartre, Grenelle, Du Roule, Popincourt, and Villejuif. These cover together an area of thirty-eight acres, with two hundred and forty slaughter-houses. Some of the clauses which regulate the operations of these establishments especially deserve notice, as they evince not only a proper regard to the health of the individuals concerned in them, but the comfort of the public generally.

TANNERS, according to M. Armieux, are subject to diseases of the fingers not described by any author, and much suffering is caused, in these cases, by contact with the lime, which it is impossible to avoid using in preparing the skins. The workmen call the disease *cholera of the fingers*. The second malady is named by them *nightingale*, because it is still more painful, and excites cries of pain. The mischief disappears without any medicine, by the mere cessation from work. "If the workmen," observes the same authority, "would wear oilskin gloves it is probable that they would preserve themselves from these disagreeable accidents. I have

recommended them, but they have invariably replied, 'It is not the custom;' so true is it that routine is the most terrible and incurable of evils."

Thackrah remarks that tanners are remarkably robust, and are said to be exempt from consumption.

LEATHER DRESSERS claim exemption from many evils. "Our men," observes the proprietor of a large factory, "are generally healthy, and the most so of the labouring poor. Many have been in our service and knowledge fifteen or twenty years, and I do not recollect one case of fever in our establishment in London. The last process in dressing is to put the skins into a pit of water to soften them, which is often used two or three times, that is, for two or three parcels, before it is changed, until the stench is intolerable. After this process the skins are struck out over a beam, and hung up side by side as closely as possible in a small room, excluded from external air, which we term a stove. In this state they remain until they heat and slime so that we can pull off the wool. So far from the workmen being unhealthy, or particularly subject to fevers, the reverse is the fact. The men employed look generally robust and healthy. In a concern in this line of business of fifty years' standing, in which fifty men are constantly employed, the men have been uniformly healthy; and the men who work upon the raw skins, from which there is a constant and profuse exhalation of putrid steams, and those employed in the lime and tan-pits, are equally healthy."

OMNIBUS-DRIVERS AND CABMEN are subject to severe complaints from the unremitting nature of their occupation, and their constant exposure to the changes of our variable climate. Among these evils we may mention bronchial affections of so severe a nature that they are most difficult to remove; also debility, acute rheumatism, and consumption. The length of duty—from seven in the morning often until past midnight—predisposes these persons to such diseases; also drinking habits, which may be said to be somewhat forced on the

men when they stop at public-houses, wet, cold, and wearied.

The employments of the **NEEDLEWOMEN** and the **SLOP-WORKERS**, as most of our readers are aware, are hard in the extreme, and call forth our sympathy, while they should increase our endeavours to mitigate their sorrows. Consumption carries off a large number of these unfortunate persons. At the last census we find that there were 33,529 needlewomen and slop-workers in London only, of whom considerably more than three-fourths, or no less than 28,577, were females under twenty years of age. The majority of these persons pursue their occupations under every possible privation, the miserable pittance they obtain scarcely keeping them from absolute starvation. The milliners and dress-makers who are engaged permanently in large establishments have, in many cases, been benefited in consequence of public interference on their behalf by a reduction of working hours and better remuneration; but the old system of overwork in small, ill-ventilated apartments, coarse food, and ill-usage, is still unhappily too frequent. The consequences may be traced in our lunatic asylums, our hospitals, and in the premature decay of these delicate victims of oppression and mammon.

EXPOSURE TO THE VAPOUR OF MINERAL ACIDS, OR OF METALLIC OR OTHER MISCHIEVOUS EXHALATIONS, is found to produce a permanent difficulty of breathing. This affection is peculiarly common to those wretched beings who are condemned by the laws of their country to work in metallic mines as an expiation of crimes proved against them, a melancholy and interesting picture of whom is given by Diodorus Siculus in his description of the mines of Arabia and Ethiopia. The air-cells of the lungs are often found constricted to half their proper capacity, whilst in many mines the vapours are so irritable as to excite a perpetual cough. They are loaded, according to the nature of the mine, with oxides, sulphurets, or comminuted

reguline particles of lead, copper, antimony, silver, and arsenic.

METALLURGISTS AND THE LABOURERS IN CHEMICAL LABORATORIES are often severe sufferers from a like cause.

It is a well-known fact that in certain cases of metallic poisoning the liver is an organ whose tissue appears to exercise a peculiar attraction for many metals, whether introduced into the system by the alimentary organs, the skin, or the lungs; and the metallic presence has been discovered in this organ by analysis after death. This holds true in a remarkable manner with regard to quicksilver, which has thus been repeatedly discovered in cases of mercurial poisoning. It is further interesting to know that those whose labours in the quicksilver mines, and some of the arts (silvering mirrors, &c.), expose them to the action of mercurial vapours, are the subjects of chronic poisoning by this metal; and in such cases a localisation of its particles in the system, and more particularly in the liver, takes place.

The **EXTRACTION OF ARSENIC** from the cobalt ores is performed at Altenberg and Reichenstein, in Silesia, with an apparatus excellently contrived to protect the health of the smelters from the vapours of this most noxious metallic sublimate.

GOLD-REFINERS become dyspnoetic from inhaling the vapour of aquafortis. Etmuller gives an account of his having been seriously injured in his breathing while superintending an antimonial preparation.

IN THE **ALLOTROPIC PHOSPHORUS** OF SCHROTTER, manufactured at Birmingham for matches, there is no smoke of phosphorous acid, which is so highly injurious to health, producing caries of the bones, particularly of the lower jaw, in the workmen employed. The prognosis of this disease is unfavourable. The prevention or diminution of its frequency is to be obtained by free ventilation, or the performance of the work in the open air, and the selection of healthy individuals, avoiding those of a strumous or consumptive habit, observing,

also, that no disease of the teeth or gums exists. With regard to direct treatment, art can do little. Among the special therapeutic means are astringent lotions, warm baths, fresh air, tonics, and narcotics to allay pain, if severe. A nourishing animal diet is to be taken at the same time. In Paris alone the manufacture of chemical matches occupies 10,000 workmen. One establishment consumes annually 1200 kilogrammes of phosphorus.

THE MANUFACTURE OF SULPHATE OF QUININE exposes the workmen to be attacked by a disease of the skin, which obliges them to suspend their work for a time. M. Zimmer, a manufacturer at Frankfort, has found that the workmen who were employed in powdering the quinquina in his works were attacked with a peculiar fever, which seizes not only the workmen, but those persons who come into contact with the emanations of the manufactory. This malady is exciting the attention of scientific men, who will probably trace its cause and remedy.

IN GLUE-MAKING and other similar trades, in which the workmen are exposed to noxious smells, the evil might be greatly remedied if, instead of in the present open vessels, the manufactures were carried on in closed vessels, furnished with a pipe through which the unwholesome gases should pass into a vessel, in which they are exposed to the action of a small quantity of chlorine or other disinfectants. In France, glue manufacturers are not authorised within a certain distance of inhabited places. The waters running from these factories are charged with a certain quantity of animal matter, as well in solution as in suspension; they give off a very disagreeable odour, and take on putrefaction very rapidly. They must be discharged, after as short a journey as possible, into cisterns or butts, and emptied into the sewers.

BREWERS are exposed to risk from the effects of carbonic acid gas generated in the fermentation of large vats.

The great specific gravity of carbonic acid gas affords a material assistance in avoiding its poisonous effects. It always sinks to the bottom of the vessels, rooms, wells, &c., in which it is contained, or to the surface of the fluids they hold, and, by introducing a lighted taper into the lower part of any situation in which it is suspected to exist, the fact is readily ascertained, for it immediately extinguishes combustion. The same property of density, however, has been at times curiously exemplified in the destruction of life. Ignorant brewers who have sat up in the night to watch the fermentation of large vats, in which great quantities of this gas have been generated, and who have laid themselves down to sleep by the side of a vat just below a spout leading out of it, although opening out of the vat far above the fermenting liquor, have lost their lives by suffocation, from the gas having poured down upon their bodies from the spout just like water.

The workpeople employed in CAOUTCHOUC MANUFACTORIES are frequently victims to the poisonous effects of the vapour of sulphuret of carbon. The symptoms produced are disturbance of the intellectual functions, such as loss of memory, vagueness of ideas, and a difficulty of keeping the attention fixed on any one subject. Headaches and extreme vertigo are the general sensations. Pains in the limbs, like chronic rheumatism, have also been observed, besides weakness of sight and deafness. The food of the patients, their tobacco, and all other odorous subjects appeared to them impregnated with the fumes of sulphuret of carbon. So strongly does this impression affect the mind as in some instances to cause an utter disgust for food: on passing some hours in the air, however, the appetite generally returns. Another symptom of this disorder has been constant nausea, not always, but generally, amounting to vomiting. The respiratory organs are also affected; the breath generally smells of sulphur; there is also some breathlessness after walking, and the respiration is short.

As evidence of the frightful nature of the different matters which are permitted to pass into the air in the process of SMELTING, we may state that they consist of the vapours of water, sulphurous acid, sulphuric acid, arsenious acid, and arsenical vapours. All these are the result of the combustion of the fuel and other matters of the ore under operation. Dr. Musprat estimates the quantity emitted at Swansea at 100,000 tons annually, and one-tenth of which is pure unalloyed arsenic.

By a patented process now in operation under the auspices of the Miners' Reduction Company the sulphur and arsenic are saved, the former being converted into sulphuric acid.

CANDLE MANUFACTORIES have nothing insalubrious about them, but they give off an insipid and sickly odour extremely disagreeable, and are liable besides to great danger from fire. During the plague of London it was remarked that tallow-chandlers suffered much less than others.

SOAP-BOILING belongs to the same class as the last named, the employment not being considered decidedly unhealthy. The smoke and the bad odour are the most disagreeable results of the manufacture. In some works there has been danger of the workmen being precipitated into the boilers of boiling lye. A Frenchman, M. D'Arcet, has proposed employing a strap and suspension cord fixed to a bar of solid iron, which would be a safeguard to the workman.

We have already, in the course of our work, alluded to distortions of the spine, &c., arising from pernicious habits or certain employments. The subject of this chapter obliges us to repeat our cautions, especially in relation to "school" occupations.

Parents, governesses, and the masters and mistresses of schools are constantly ordering young people to sit upright, under an absurd notion that the flexed posture leads to stooping, whereas it really strengthens the extensor muscles of the back. In sitting the trunk is in

a position of unstable equilibrium, and the extensor and flexor muscles are in a state of constant action ; but, since the flexors are much weaker than the extensors, the body is naturally inclined forwards, by which means the former are relieved at the expense of the latter. Hence it is evident that the upright condition cannot be long maintained without fatigue, but that, by throwing the body forwards, the great power of the extensors enables us to sit for a considerable time without being tired.

While on the subject of schools, we may also give our complete adhesion to the following remarks in "Household Words" on school-stools. "The illustration will be found in the very common, perhaps universal custom, of furnishing a school with stools and forms in lieu of ordinary chairs. This is a direct sacrifice of health to parsimony. The stools cost little, and are conveniently moved from one room to another. All mistresses know, however, that the spine of a growing girl is unable to support constantly the weight of her head and shoulders. Nature teaches leaning as a means of relief, by which the weight is lessened, and the free action of the chest not impeded ; but a girl who sits on a stool cannot lean, and her spine bends. The resulting deformity may be permanent or temporary, an abiding curvature to one or other side, or a mere rounding of the back, removable at will. But all such distortions, while they last, if only for five minutes, have a bad effect that is commonly forgotten. They confine the chest and hinder respiration, limiting the quantity of air admitted into the lungs, and producing effects similar to those of a vitiated atmosphere. This is no light thing. To place a girl in such a position, for several hours daily, that her chest cannot expand with freedom, is to subject her to a kind of slow poisoning. Those who have narrow chests become, under such treatment, pallid and listless, their hearts beat violently on exertion, and they are rendered dangerously prone to lung diseases. The majority show little amiss, and Miss Thompson speaks

of the excellent health of the girls under her care. But to all of them a little mischief is done every day, their standard of health is lowered, and their power to resist hurtful influences is diminished."

NURSES, particularly the enfeebled and ill fed of that class, are subject to cramps of a painful character. These complaints occur more frequently in the upper extremities than in the lower, and occasionally they are confined to the muscles of the neck. The pain is often very severe and continued. Most generally the cramps are accompanied by evidence of scrofula or hysteria

An improved diet, with opium and ether for the pain, are the usual remedies.

A large mortality likewise occurs from fevers. This is easily explained by the infectious character of some diseases nurses are called upon to attend.

WASHERWOMEN frequently suffer from ulcers in the legs, occasioned by long standing. According to Parent Duchâtel out of 766 women suffering from this complaint, 204 were washerwomen.

Cases of WRITERS' CRAMP, arising from a too close use of the pen, sometimes occur. An instance of a cure effected by electricity, by M. Seccamine, is lately recorded in the medical journals.

The patient in this case was a lawyer's clerk, aged forty, well in other respects, who had suffered for some time from a paralysed condition of the right hand. When he attempted to write, the fingers grasped the pen convulsively, and writing was out of his power. The case is not given circumstantially, and we are not told how long these symptoms had continued; but enough is said to show that they were those of ordinary writers' cramp, which had been brought on by an excessively prolonged use of the pen, and that there was no disease in the great nervous centres or elsewhere. Examining the arm by means of the electrical apparatus of Duchenne, the sensibility was found to be in a perfectly natural state, but not the mobility. The flexors of the fingers and the adductors of the arm

contracted normally; the pronator-teres contracted imperfectly; and the extensors of the arm contracted very slightly. The electricity was applied by means of two moistened sponges, and the paralysed muscles were excited by acting powerfully upon their antagonists, after the plan laid down by M. Duchenne, and the result was that the use of the hand was perfectly restored after fifteen sittings of about half an hour each.

The physical constitution of the NAIL MAKER suffers greatly from his employment. Placed in half circles around forges, the nailers strike uninterruptedly, and with repeated blows, on the iron, from which they manufacture millions of nails. In a state of complete immovability of the legs, in a continual movement of the arms, with a perpetual balancing of the body, they thus pass their lives in the midst of the sulphurous vapour of coke and a hot atmosphere. The nailer has raised shoulders, and the left is higher than the right. The trunk is inclined to the same side, and the weight of the body inclining in this sense, bends the corresponding leg, which causes the nailer to be uncertain in his walk and to limp. The hands are also deformed, especially the right.

MINERS are subject to serious casualties, the most frightful of which are explosions. Some idea may be gathered of the vast numbers of persons employed in mining operations, from the fact that in 1854 there were 30,862 males, and 5,922 females occupied in Cornish copper, tin, and lead mines. Upwards of 250,000 men are employed in the coal mines of this country. Until very recently, so great were the liabilities to accidents of various kinds among miners, that it was calculated a thousand lives were lost annually in this employment.

Miners in *wet* mines suffer severely from rheumatism; they are also very liable to diseases of the chest: these they frequently attribute to working in *foul* air.

One great cause of the peculiar unhealthiness of mines is their working in galleries and shafts that are

badly supplied with pure atmospheric air. In these the air is sometimes so *dead*, as the miners term it, that a candle, held perpendicularly, goes out in a short time, and the only way in which the miner can obtain light enough to work is by putting two candles together, and placing them horizontally. Of course there is here an imperfect supply of oxygen gas. No one can work long in these "damps" without suffering from dyspnoea and cough, and from which the miners frequently date the origin of their malady.

With respect to that chronic form of what, in Cornwall, has been called the *miners' consumption*, "I should think," remarks Dr. Wise, "that full three-fourths of those who continued to work under ground to the age of fifty are, more or less, affected with it, and a great number die of it between the ages of forty and fifty-five. It seldom proves fatal in a shorter period than two or three years, in some instances going on to five, or even to eight or ten years. During this time there will be numerous aggravations of the disease, particularly in the winter season, and especially marked by increase of dyspnoea, always aggravated by bodily exertion, and more or less expectoration, and some degree of emaciation.

"Very much, I am aware, has been said in regard to the vitiated air from noxious gases, gunpowder, smoke, &c., so often encountered by miners in their subterranean employ, as giving rise to pulmonary diseases; yet I have long thought that there is another cause which operates more powerfully, not only in inducing chronic consumption, but also hæmoptysis, and, in the young scrofulous subject, tuberculous phthisis, namely, the mode of ascent from the deeper mines by the ladder, a practice which, under the most favourable circumstances, is, I conceive, highly prejudicial to health."

This latter evil may now be considered as remedied, for among the colliery regulations which came into operation at the commencement of 1856, is one requiring

that "an adequate brake shall be attached to every machine worked by steam or water-power used for raising or lowering persons."

An important movement is also now in progress in Cornwall for the more efficient ventilation of mines. Several gentlemen have offered large sums of money as premiums for competition, in the hope of directing a larger portion of public attention to the subject. The steam jet, invented by Mr. Pearce, of Bradford, has been proved to be very efficacious in ventilating coal mines, particularly in sinking deep shafts.

The fearful explosions in mines of late, point out the necessity of stringent measures being taken to force the workpeople themselves to adopt the means of precaution, with which in most cases they are furnished. To their own wilful neglect may be attributed many of these calamities. Sir Henry de la Beche observes:—

"In the examinations which have been so frequently instituted on the spot into the causes of explosion in our collieries, and in which I have had but too often personally to take a part, how constantly the frightful truth is forced upon us that folly and fool-hardiness, founded on ignorance, have destroyed numbers, even to the amount of seventy and more at one blast, and that every day hundreds of those who labour for our comfort or our profit are at the mercy of ignorance."

The manufacture of PERCUSSION CAPS, used as a priming for guns, is attended with much danger. The insides of the little copper caps are smeared over with a varnish containing a mixture of the chlorate of potass and sulphuret of antimony, or with fulminating mercury. These substances are highly inflammable, and explode on the smallest friction or percussion. Terrible accidents are sometimes produced by the explosion of these materials, which are more powerful than gunpowder, and are sometimes given out in considerable quantities to the workpeople, who are often ignorant of their dangerous properties, and incautious in their employment.

Those engaged in BUILDING TRADES are subject to various diseases, such as those of the lungs of masons, plasterers, painters, &c., from dust. Builders are exposed to fearful accidents from insufficient scaffolding and ladders, scamping, and loose workmanship. With a proper amount of care, however, to prevent the inhalation of dust, plasterers are a very healthy set of men; and in proof of this we may notice the number of old men to be seen amongst them. The reason of this may be that the muscular exercise is neither too protracted nor too severe, and the lime they use has a strong sanitive influence. It sometimes affects the eyes, but its action on the blood and on the bones is so beneficial that plasterers, even if ill fed and worse clothed, are often strong and healthy men. There are between five and six thousand in this trade in the metropolis only.

POISONING BY LEAD, to which so many workmen are constantly exposed, is, unhappily, of such frequent occurrence, and so disastrous in its consequences, that it claims our special attention. Various remedies, however, more or less efficacious, have been discovered for this disorder. Perhaps one of the most simple, and which has been found highly beneficial in the case of house-painters, are the charcoal respirators. These entirely prevent the PAINTER'S COLIC, which usually terminates in paralysis of the extremities. This disease is produced in house-painters by the absorption of the oxide of lead, which is carried up in vapour by the turpentine with which pigments are mixed. Oxide of zinc is, however, now generally used instead of white lead for house-painting, as being less noxious.

COMPOSITORS are often subjected to injuries from the types. These, a compound of lead and antimony, emit when heated, a fume which affects respiration, and sometimes produces palsy of the hands. This, however, may be mitigated and avoided by the compositor waiting until the types are cold. In a recent case of wrist drop, after using new type, the complaint gave way to

local treatment by soaking the hand and wrist in a solution of sulphuret of potassium to eliminate the lead. The solution was made of the strength of one ounce of sulphuret of potassium to ten ounces of water, the patient keeping his hand in it for three hours *at a time* thrice in the twenty-four hours. In one week the cure was perfectly successful.

Heurnius saw the lungs of a printer so charged, by inhaling an atmosphere impregnated with lead, as to resemble a shrivelled apple.

A disorder formerly well known in this country, and called, from the county where it was most prevalent, "DEVONSHIRE COLIC," was shown by Sir George Baker to be occasioned by the drinking of cider in which lead was dissolved. The malic acid of the apple juice exerts a powerful chemical action upon the metal, thereby forming the malate of lead, which is a strong poison. In consequence of these evils, thus exposed by science, dishes or beds of lead for cider presses have generally fallen into disuse. The reprehensible use of lead vessels in dairies is not altogether discontinued, though it is well known that when the milk turns to acidity in any considerable degree, it inevitably absorbs some portion of the metal. The plating of lead with tin would obviate all the evils.

IN THE MANUFACTURE OF SHOT in which the lead has some portion of arsenic, by which its sphericity and solidity are improved, to remove the objections against the arsenated material, a small quantity of quicksilver has been mixed with the lead, which answers the purpose sufficiently.

In all smelting works the smoke rising from the furnaces is highly charged with noxious vapours, containing, besides other poisonous matter, a large quantity of lead. This, by an effectual process, can now be entirely removed.

The morbid symptoms which endanger the health and life of those who labour in manufactories of carbonate of lead and of minium, are shared by all whose

occupations lead them to employ lead and its preparations. More than forty professions, according to Mr. Gendrin, who has studied deeply this disorder, are attended with danger to those who follow them from this source. Among them the most dangerous are those in which are prepared the chemical products of which lead is the basis, such as manufactories of litharge, of carbonate of lead, of minium, of oxide of lead, establishments in which lead in the metallic state is worked (those for the fusion of lead for the manufacture of shot and of printing types), works for the vitrification of the oxide of lead (potteries, china, and crystal works), trades in which the salts of lead are used (house-painting, black-dyeing of horsehair stuffs, glazing of visiting cards), &c.

In all the establishments devoted to these purposes most of which are on a very extensive footing, a large number of workmen are exposed to the action of a great quantity of poisonous matter, volatilised in a state of palpable dust, or vaporised, or dissolved in fluids. Thus brought in contact with the absorbing surfaces of the economy, the poison acts with the greatest possible energy, owing to the activity of the tegumentary functions, exaggerated by labour, and by the elevated state of the temperature.

According to Mr. Gendrin, whatever may be the gravity of this disease, unless it be complicated by cerebral symptoms, lead colic may be always cured by the ingestion alone of sulphuric acid in the dose of from a drachm and a half to two drachms, mixed with about three pints of water, for the four-and-twenty hours. The cure takes place in six days, on an average, if the disease is extreme; in three days if it is slight. Whenever the skin of the patient is covered with a layer of lead, as is the case with nearly all the workmen who come out of workshops in which large masses of the metal are operated upon, to the sulphuric acid administered internally, must be added the external use of sulphurous and soap-baths, the cleansing qualities

which are increased by the deterrent action of frictions performed with a brush.

In order to preserve workmen from saturnine affections the following precautions may be adopted:—Two glasses of the sulphuric lemonade must be drunk each day; the parts of the body which are uncovered during labour must be washed with soap and water at each cessation from work: the workman must have clothes on purpose to work in. Those who are employed in localities where the atmosphere is loaded with a great quantity of metallic dust or poisonous vapour ought, also, to take two general soap-baths each week, scrubbing the body with a flesh-brush. The omission of these precautions during six or eight days, or even during two or three, if the workman commits excesses in drinking, is often sufficient to allow the symptoms of poisoning to appear. It is also necessary to continue for some time the use of the sulphuric lemonade and the soap lotions, even after ceasing to work at lead. Sulphuric lemonade may be thus taken without any injury to the health. The workpeople of the manufactory of carbonate of lead at Olichy, have taken it during two years and a half without experiencing any ill effects whatever.

In addition to these remedial and preservative measures there is still much to be done by mechanical precautions. The sieves for minium and the mills for the carbonate of lead should not be moved by hand.

The sulphuric acid was given by Mr. Gendrin largely diluted with water (forty-four drops to a pint of water), two or three pints being administered in the twenty-four hours. The amount of pure, strong acid taken in that time was, therefore, from one drachm and a half to two drachms.

The mode in which the acid acts in neutralising the poisonous effects of the lead is easy to explain. It combines, no doubt, with the lead in the tissues, and forms with it an insoluble sulphate or sulphuret, which is consequently inert, and is gradually eliminated from

the economy. The use of the sulphuric lemonade *alone* is not sufficient to guard against the disease: the skin must be well and daily cleansed. Indeed, it would be well if a sulphur bath were used *occasionally* in order to demonstrate the state of the skin.

In M. Aran's opinion—and this opinion is supported by an experience embracing twenty-five cases, and extending over four years—chloroform is an efficacious remedy in the treatment of lead colic. In the earlier days of the severer cases the chloroform is used topically; but it is upon the internal use of the remedy, either by the mouth or in the form of an enema, that M. Aran places his confidence. The plan is to keep the patient continually under the influence of the remedy by repeated small doses, which together, in the course of the day, mount up to from sixty to three hundred minims. The quantity used in an enema varies from thirty to fifty minims. The chloroform is suspended in water by means of tragacanth. M. Aran perseveres in this treatment for several days, gradually reducing the dose, and always continuing the enemata for some time after having given up the draughts.

All the processes of the POTTERY manufacture are performed by manual labour, and no machinery, in the ordinary acceptation of the term, is used. Every branch of the trade is healthy with the exception of that employed in covering the surface of the ware with glaze, or, as it is technically termed, "dipping."

One of the ingredients of the glaze being oxide of lead, the workman, whose hands are constantly immersing in the liquid, is subject to paralysis unless due care is taken. To prevent this, the more respectable manufacturers have assigned to such men a *varied* employment about their ovens, and furnish them with a dress to wear at the glazing tub, and throw off when they leave it, and a water cistern, soap, and towels near them to wash their hands before they go to their meals.

M. Blandet states that the COPPER COLIC, although rare in hospitals, is very common in workshops, and

that all apprentices are attacked with it. It appears to be produced by the inhalation of pulverised copper. It is generally an apyretic affection, characterised by colics, with extreme prostration, and sometimes by diarrhoea, sometimes by constipation. Its ordinary duration is forty-eight hours. In the Paris workshops milk is used as a preservative. The treatment consists in emollients or slight purgatives according to the symptoms. In copper foundries, on the afternoon of the fusing day, or on the morning following, the workmen employed experience muscular pains, cephalalgia, general lassitude, vomiting, and rigours, which end in copious sweats and slight febrile reaction. These symptoms M. Blandet attributes to the zinc which is fused along with the copper to form bronze, &c. The very high temperature which is resorted to in order to fuse the combined metals gives rise to the formation of vapours of zinc, which become oxidised, and fill the workshop. In the fusion of zinc alone these accidents are not observed, it not being necessary to raise the temperature so high.

THE EYES SUFFER MUCH FROM OVERSTRAINED WORK AND OTHER CAUSES IN VARIOUS OCCUPATIONS, but in many cases by taking proper precautions much misery may be averted.

Watchmakers, and other artists who work with a magnifier, generally find that they see better with one eye than the other. If, instead of always applying the magnifying-glass to one eye, they were to use the other eye in turn, which might be easily acquired in early life, although with difficulty afterwards, they would preserve the power of their eyes more equally. Watchmakers and engravers also suffer from allowing the heat and glare of their lamps to fall upon the eye instead of their work. Constant attention to minute objects exposes them to premature exhaustion of visual power: during the short and dark days of winter they are forced to employ lamp light. Mr. Rainey's ingenious apparatus for intercepting the red rays of the flame is calculated to lessen this evil. It is made by cement-

ing together, by means of Canada balsam, four pieces of glass; the first dark blue, without any tinge of red; the second very pale blue, with a slight tinge of green; the third and fourth to be thick plate glass perfectly colourless.

Wire gauze, notwithstanding the perforation of its texture, possesses to a very considerable extent the property of intercepting the effects of flame. The knowledge of this suggested to the Chevalier Aldini, a Milanese, the possibility of making out of woven wire a dress, or armour, which should be so far fireproof as to allow a person, protected by it, to expose himself in situations otherwise inaccessible.

NEEDLEWOMEN'S EYES often suffer from *gutta serena*, and this, in most cases, is occasioned by working in black by candlelight, which is done because there is a rule at all great milliners' establishments, that all light-coloured work shall not be done after dark. "They find," observes Dr. Chambers, "that from the bad ventilation, the draughtiness and closeness of the rooms, and ignorant mode of ventilation, the fireplaces, candles, or gas will smoke, smuts fly about, and soil the fabrics. A light dress would, of course, be injured by this dirt; but, instead of trying to remove it by better ventilation and better lighting, the employers insist upon those dark colours alone being exposed to it where no great harm is done by a little stain. I believe," adds Dr. Chambers, "the whole of the special injury to milliners' eyes from their work might be prevented by the application of the simplest rules of ventilation and lighting, which would enable light-tinted work to be done by night. In the north of China those who produce the most exquisite embroidery always have their rooms painted green, and have blinds of that colour to their windows."

Mr. Cooper, surgeon to St. Mary's Hospital, gives a similar testimony to that of Dr. Chambers.

"On referring to my records, I find that *thirteen hundred and twenty* such cases came under my notice in

nine years, the large majority being tailors, shoemakers, and female workers with the needle. It is not the mere employment *per se* which appears to be productive of so much harm, but the circumstances under which it is conducted, and the excess to which it is carried. I have been repeatedly told by milliners that twelve, fourteen, or sixteen hours a day was the ordinary duration of their labours, and this often in foul and badly ventilated apartments. Milliners and tailors are especially liable to suffer from extraordinary demands upon their powers of endurance—a large amount of work has to be completed in a limited time: this involves the loss of sleep, and close confinement in an atmosphere loaded with impurities, and heated to an exhausting extent.”

One of the worst of habits is that of overworking the eyes at night by candlelight. Those whom circumstances compel to study in the evening should select that kind of work which is least distressing to the eyes; they should especially avoid indistinct writing and small print. Reading by firelight, or simply gazing at the fire when sitting alone, is highly injurious, and should be avoided by all.

Among other trades that affect the sight are those where the eyeball is exposed to mechanical injury: the stone-breaker, the mason, grinder, jeweller, &c., are sufferers from accidents of this nature; but these evils might be obviated by wearing a pair of wire spectacles.

In GLASS MANUFACTORIES, where boys are taught to mould glass with the blowpipe, the eyes suffer greatly; but a remedy has been found in wearing tinted spectacles, which effectually prevent the bad effect of the glare. Glass-blowers and smelters would find advantage from the use of eye-pieces covered with double gauze or crape, and retained in place by elastic bands; or even a spectacle frame, with large circular eye-pieces, covered with the above materials, would be a considerable protection.

Ophthalmia is very common among IRON FOUNDERS, and especially among NAILERS, whose sight is fatigued

by the vacillating fire of the forge, by the brightness and heat of the fire, by the fineness of the objects they manufacture, and by the fixity of their looks on these objects. It is, in a great measure, to repeated inflammations of the eyes that many of these workmen owe, towards the end of their days, this feebleness of vision that puts them out of condition to work. Coryza, which is usually so simple a complaint, assumes sometimes with iron founders an extraordinary intensity, and produces most distressing symptoms. The inflammation prolonged into the frontal sinuses, and continually exasperated by the concussions of the hammer, gives rise to intolerable pains in the head, to fever, even to delirium, and sometimes endangers the life of the patient.

The **WEAVERS** of SPITALFIELDS suffer much from affections of the eyes, insufficient lighting of their work-rooms in the evening being a frequent cause of the overstraining of the organs.

Persons who live almost constantly in dark caverns or chambers, workers in mines, and prisoners who have been long confined in gloomy dungeons, become incapable of seeing objects distinctly, excepting in a deep shade, or in the dusk of the evening; while, on the other hand, in various parts of the world in which the light is constantly reflected from a soil of dazzling whiteness, or from mountains and plains covered with almost perpetual snow, the sight of the inhabitants is perfect only in broad daylight or at noon. Those, also, who are much exposed to *bright fires*, as blacksmiths, glassmen, forgers, and others engaged in similar employments, are considered by the best authorities as most subject to loss of sight from cataract.

The eyes of **PRINTERS** suffer from the too close application to minute objects. The unsteadiness of the light by which compositors work, and which occasions serious injury to the sight, is, in a great measure, caused by the want of chimneys to their lamps, which can be supplied at a few pence each; or, to render the remedy

more effective, glass chimneys for lamps might, with advantage, be tinged of a pale blue. Shades to surround the lights might be coloured on the inner side with the same hue, but this should always be "flat," not brightly varnished. The position of the light is of great consequence. It should always be so placed that the objects to be discerned could be thoroughly illuminated, but the eyes kept in the shade, which could be managed by having the light placed either above the head, or, better still, rather behind and a little to one side. The eyes would then be perfectly protected, and the amount of comfort obtained by the alteration very great. It is pleasing to notice that at several of the largest printing-houses precautionary measures are adopted to preserve the eyes from unsteady or excessive light. At the *Times* office shades and chimneys are used, and among the 200 men employed, the statistics of the sick fund show that but one man has been invalided from defective vision.

ARTILLERYMEN, BLACKSMITHS, AND THE BLASTERS IN MINES OFTEN BECOME DEAF, and this seems to be dependent upon defective energy of the acoustic nerve from having been so frequently *over-excited*. In those cases where the disease has come on *gradually* there is little hope of ever regaining the power of hearing.

CONSUMPTION MAKES FEARFUL HAVOC AMONG OUR LABOURING CLASSES. The annual waste of adult life from this cause alone may be safely stated at upwards of 5000, and this estimate is probably much below the truth. These are *preventable* cases, and do not include a certain amount of consumption—probably about one in seven of all deaths above fifteen years of age, which is nearly the proportion occurring in the higher orders, and in the most healthy professions—which may be considered as inevitable. *All beyond that proportion admits of prevention.* Dr. Guy considers that the chief cause of this great mortality is the *defective ventilation of houses, shops, and places of work.* Next to this in point of importance is the in-

halation of dust, metallic particles, and irritating fumes. One cause over which the poor themselves can exercise control is *the abuse of spirituous liquors*, a very fruitful source of consumption. From statistics furnished by the Royal Infirmary for Diseases of the Chest it has been found that out of 515 cases not less than 68·34 per cent., or rather more than two-thirds, have been persons following in-door occupations. Possibly the percentage is even higher, for all who have called themselves "labourers" have been presumed to be out-door workers, although this may not always have been the fact, since many labourers in London are employed in vaults, in warehouses, and in gas-works. Among the in-door occupations which present the largest number of cases in this list, boot and shoemakers rank first, needlewomen second, watch and clock makers third, domestic servants fourth, painters fifth, tailors sixth, printers, of whom the majority are compositors, seventh, bookbinders eighth, French polishers ninth, cigar-makers tenth, writers eleventh, smiths twelfth, tinmen thirteenth, and cabinet-makers fourteenth. There are altogether in the list one hundred and forty trades specified, but the above-named fourteen yield rather more than forty-four and a half per cent. of the whole.

In the case of parents having children of a consumptive tendency, the greatest care should be taken to obtain for them out-door employment. But here a serious delusion frequently comes into play. If the child is weakly the fond parent urges that it is unfit for hard labour and for out-door vicissitudes; so it is sent to a tailor or shoemaker, to a clerk's office, a draper's shop, or to some occupation of an in-door character. By this fatal mistake it is added to the list of the two-thirds who swell the tables of consumptive cases.

In many in-door occupations a double mischief is at work. The patient is confined in an impure air, and is made to inhale some foreign agent, present of neces-

sity from the character of his work, and with which the air is charged. The substances which the lungs are thus made to inhale are as various as trades themselves—sand and glass in the sand-paper manufactory, dusts and stuffs of different kinds in textile manufactories, acid vapours in dyeing establishments, naphtha and turpentine vapours in polishing and burnishing shops, with numerous other noxious elements. Whenever a consumptive patient, following an in-door occupation, comes under treatment, he or she must be made to leave it or to modify the employment. Some pursuits, such as cigar-making, sand-paper making, and fur-dyeing, are absolutely fatal, and it is hopeless to treat medicinally the patient who continues to follow them; but in other trades where no mechanical mischief is being done to the lungs, and where the evils mainly are those of confinement in a room and want of exercise, very much can be done by ventilation, and by getting the sufferer to give up a portion of every day to a long walk in the open air.

Almost all occupations implying muscular exertion out of doors, without undue exposure to wet and damp, may often be pursued by the consumptive as long as possible and with advantage. The pursuit of some occupation is better exercise than simple walking, since it keeps the mind occupied and in healthful tone.

It is to a disgraceful violation of hygienic laws that we are to attribute the remarkable **LIABILITY OF SOLDIERS TO CONSUMPTION**. According to the Report of the Sanitary State of the Army just published, the disgraceful condition of the barracks, especially of the foot-guards, is a fruitful source of disease. "The ravages caused by pulmonary complaints are to be traced, in a great degree, to the vitiated atmosphere generated by overcrowding and deficient ventilation, and the absence of proper sewerage in barracks." The description of the structures which follows reminds one "more of a slave ship than a place for English soldiers to inhabit."

Of effective soldiers of all ages of the army at home the annual mortality is 17·5, while in the general population it is for men of the army ages, in the town and country population, 9·2; in the country alone, 7·7; thus soldiers die nearly twice as fast as the general population, and very much more than twice as fast as the inhabitants of the rural districts. It appears that while in civil life at the soldiers' ages the deaths by pulmonary diseases are 6·3 per 1000, they amount in the cavalry to 7·3; in the infantry of the line to 10·2; and in the guards to 13·8; and that of the entire number of deaths from all causes in the army, diseases of the lungs constitute the following proportions, viz., in the cavalry 53·9 per cent.; in the infantry of the line 57·277 per cent.; in the guards 67·683.

The systematic selection of tall men may have an effect in some regiments, rapid growth being by no means favourable, either in animals or vegetables, to firmness of structure. The listlessness of the soldier's life may also have its influence upon health.

The medical statistics of our prisons afford striking evidences of the influence of depressing emotions in inducing phthisis. Dr. Baly has collected particulars regarding the HEALTH OF PRISONERS in various parts of this country and in America, and one of the most important conclusions which those particulars serve to establish is the remarkable prevalence of consumption in those establishments, under every variety of climate, diet, and general regulation. This greater liability to phthisis among prisoners, as compared with the ordinary population of these countries, is obviously independent of locality, and can be referred only to some common cause. At the Millbank Penitentiary the mortality from consumption is four times the average in the general population, and it is worthy of remark that in those who fall victims to the unfavourable influence, the average period for the full development of its effects is about three years.

CONSUMPTION is greatly prevalent among PRINTERS, but this is much induced by the confined atmosphere in which they are employed. According to the statement of one of them in a letter to the *Builder*, the daily newspapers are manufactured in as foul dens as can well be constructed. In most of these establishments there are about fifty men employed in each; they are occupied at work from about four in the afternoon until five, six, or seven the next morning, and during the whole of this time the gas is kept burning. The fearful heat, the foul smells, the stifling atmosphere, and unavoidable ill-health, are consequent upon it. The atmosphere in these rooms is described as like the blast of a furnace. Who can wonder, from this description, that so few printers attain a fair average term of life? A remedy for many of the evils complained of will be found in a proper system of ventilation, which is rarely adopted in printing-offices, and hence the sallow, care-worn look, the index of bad health, so often observed among the workmen.

Dr. Guy, in the course of his experience in these matters, states that, among 104 men (letter-press printers) having less than 500 cubic feet of air to breathe, there were 13 who had spit blood, 13 who were subject to habitual catarrh, and 18 to other diseases, making a total of 44 invalids; of 105 men who had from 500 to 600 cubic feet of air to breathe, 5 had spit blood, 4 were subject to colds, and 23 to other diseases, making in all 32 invalids; while out of 100 men having more than 600 cubic feet of air to breathe, 4 only had suffered from spitting of blood, 2 from catarrh, and 18 from other diseases, making a total of 24 invalids.

According to Cadet de Gassicourt, PRINTERS seldom live beyond 45 years of age, and Mr. Thackrah says they rarely pass 50; while M. Chevallier, who has investigated the diseases and the longevity of printers at Paris, came to a very different conclusion. He found that, in

23 printing-offices in Paris, the age of the men was respectively as follows:—

No.	YEARS.	No.	YEARS.
1	from 18 to 60	13	from 40 to 50
2	" 15 " 50	14	" 30 " 60
3	" 12 " 75	15	" 10 " 70
4	" 18 " 55	16	" 25 " 50
5	" 18 " 50	17	" 20 " 62
6	" 18 " 50	18	" 20 " 60
7	" 18 " 60	19	" 17 " 50
8	" 20 " 50	20	" 20 " 45
9	" 20 " 50	21	" 18 " 65
10	" 18 " 40	22	" 15 " 70
11	" 20 " 55	23	" 17 " 60
12	" 20 " 40		

Moreover, M. Chevallier was informed by a workman that some years ago there was one printing-house in which 40 men were employed, 25 of whom were between 50 and 70 years, so that it was nicknamed the "Greybeard Printing-house." The names were given of 17 printers then working in Paris, 14 of whom were 70 years old, one 68, one 62, and one 80. A man named Dubois worked for Didot, junior, until 84 years old, when he died; and another worked until 84 years old. The tables of mortality of hospitals in 1831 enumerate 25 printers who died between 55 and 78 years. In the hospital—of the four died at the ages of 69, 78, 64, and 75.

According to Dr. Thompson, of the causes, producing or aggravating consumption, some are under our own control. That source of many plagues, contaminated air, is not essential to our apartments or workshops. Open fireplaces, with Arnott's ventilator of sufficient dimensions, or even a zinc pipe communicating with the chimney, would, to a great degree, correct evil, and some hundreds of lives might probably, by such simple precautions, be annually saved to the metropolis.

In addition to the benefit of free exercise in the open air, much good would accrue from attention to the power with which the will is endowed over the res-

tory muscles. Some of the evils incident to intense study might be obviated by occasionally pausing to practise breathing.

Among the mental causes of disordered health few are more operative than that continual source of disquietude and physical exhaustion, ambition, beyond the extent of power. It is difficult to estimate the amount of evil which might be prevented if individuals could obtain a correct estimate of their powers, and avoid attaching themselves to offices for which they are not adapted. Unhappily the selection of occupations among the lower orders usually depends upon circumstances quite irrespective of special adaptation, and in the upper classes, motives of gain too often overrule considerations of health or moral fitness.

The foregoing are only a few of the numerous cases which, if space permitted, we could bring forward as evidences that the evils have their remedies in most instances, and that it depends greatly upon the artisan himself whether he will adopt, or culpably neglect, the means of prolonging existence, which the plainest principles of science place at his command. In the words of the Census Report for 1851, as there is no reason why the mean "lifetime" in England should be forty years; and as it is found to range in extent, under different circumstances, from twenty-five years in Liverpool and Manchester to forty-five years in Surrey, and in other localities to a number of years still higher, there is good ground for believing that it may be gradually raised yet nearer to the complete natural lifetime; but immense efforts must be made individually and unitedly.

The Registrar-General, in his last quarterly report for 1857, presents us with an appalling picture of the waste of human life from causes, the remedy of which lies in our own power. He states that the people of this country "do not live out half their days; a hundred and forty thousand of them die every year unnatural deaths; two hundred and eighty thousand are constantly

suffering from actual diseases which do not prevail in healthy places; their strength is impaired in a thousand ways; their affections and intellects are disturbed, deranged, and diminished by the same agencies.

The way is not closed to great and immediate ameliorations; but, as it has pleased the Author of the universe to make the food of mankind chiefly the product of labour, their clothing of skill, their intellectual enjoyments of education, their purest emotions of art, so health and the natural lifetime of the race are, in a certain sense, evidently to be the creation of the intellect and the will; and it is only with the observation, experience, science, foresight, prudence, and decision of generations of men, at command, that the battle of life can be fought out victoriously to the end.

THE END.





